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THE CONDOR

A Magazine of Western Ornithology

Volume XXXI March-April, 1929 Number 2

COOPER ORNITHOLOGICAL CLUB

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A Magazine of Western Ornithology

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COOPER ORNITHOLOGICAL CLUB

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Issued March 15, 1929

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VOLUME XXXI | MARCH-APRIL, 1929 | NUMBER 2

DOWN-TREE PROGRESS OF *SITTA PYGMAEA*

WITH NINE ILLUSTRATIONS

By J. EUGENE LAW

Fig. 13. Pigmy Nuthatch on vertical trunk. Note depression of sole of lower foot, while upper is pulled away from tree surface.

There seems to be no end of subtle influencing factors, all presented in the twinkle of an eye, which may be important in the simple life of a nuthatch. It is hard to appraise them even with the help of a camera, when a split second is often too late. For instance, what is the exact position and use of the feet of a nuthatch as it travels down a tree or clings head downward on a perpendicular surface? Let the camera answer.

In taking the pictures, attention was focused on the feet of the birds, and the body poses, usually just out of clear focus, are the by-product. Some pictures, not concerned with feet, have been included because of their life-history interest, and comments on them have been added.

The opportunity came with the discovery of a nest of this species on August 17, 1926, at Bluff Lake in the San Bernardino Mountains of southern California. It contained tiny young. The nest was tucked away among the cracks of a huge naked weather-silvered pine trunk, already creaking for its final fall. As the nest was only 8½ feet from the ground, it was possible to photograph the parents at close range as they came with food. On the 17th and 18th, much of the time during which the nest-hole area was in direct sunlight, was spent in an endeavor to catch the various poses.

Down-tree progress for a nuthatch seems to be a series of sidling hops or drops. While the bird is moving, its body rarely, perhaps never, parallels the axis of the tree, and at each pause one foot is usually apparent, cling-

ing up-trunk, its grasp transverse to the axis of the tree (see figs. 15 and 16). When the bird stops, its body may turn so that the body and head point directly downward, and even then there is always that foot up-trunk holding on while the other foot holds the body out from the tree.

When the head is downward, one may believe that the near-dorsal position of the acetabular socket, from which the legs hinge, tends to pivot the anterior end of the body out from the trunk of the tree, a position the bird often takes when it pauses. This appears to be merely the effect of gravity pull, controlled by the hip-joint suspension, which for the moment has become the center of motion. The head down position may therefore be considered one of complete relaxation.

Fig. 14. PIGMY NUTHATCH HOPPING DOWN TREE. PHOTO BY HERMAN H. GARNER.

It is obvious, if we think a minute, that in this position the function of the up foot is to cling by the toes, while that of the down foot is to support. Several of the pictures taken indicate in profile this definitely different function of the two feet. It may be seen in figure 13. The sole of the lower foot is depressed against the trunk while that of the upper foot is free.

Probably mechanical difficulties inhibit a purely vertical position with the feet side by side, when a bird's body is headed downward. It may be that a vertical grasp, with the grain of the wood, is too precarious, especially when, in a head down position, only a single claw of each foot, that of the hallux, is available for the hook-in. In the reverse position, head up, it is the lateral toes, wide spread, that make the grasp secure. For a bird hopping down a perpendicular surface, there must be no uncertainty that each grasp will be instantly secure. Not that a miss would involve any danger to the bird, since wings are ever ready, but it might be annoying. And Nature seems to abhor such annoyances, if we may judge by the precision with which she seems to provide against them.

It may be of interest in this connection to note that the wings as shown in figures 15 and 18 are pushed about as far back and across as possible: for what reason, I cannot guess. It is hard to believe (I do not) that a single raising of them would yield any value in pushing the body toward the trunk, and the first return stroke, when the head was down, would surely be trying to the bird's equilibrium.

For a radius of two inches around the nest hole, the silvering of the rotting trunk had yielded to a buffy color, no doubt due to the constant and concentrated pricks from the sharp claws. Through a large vertical crack a little light reached and exposed the nest which was slightly higher than the tiny south-front entrance hole. (See fig. 20.) At one time of the day a person, peering in, might see waving heads responding eagerly as the trunk was lightly tapped.

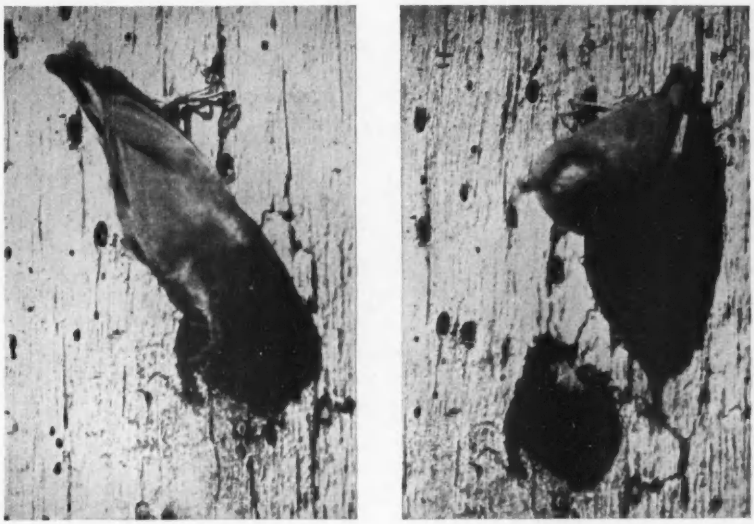

Fig. 15. PIGMY NUTHATCHES, WITH FOOD IN BEAKS, HOPPING DOWN TREE TOWARD THE NEST HOLE.

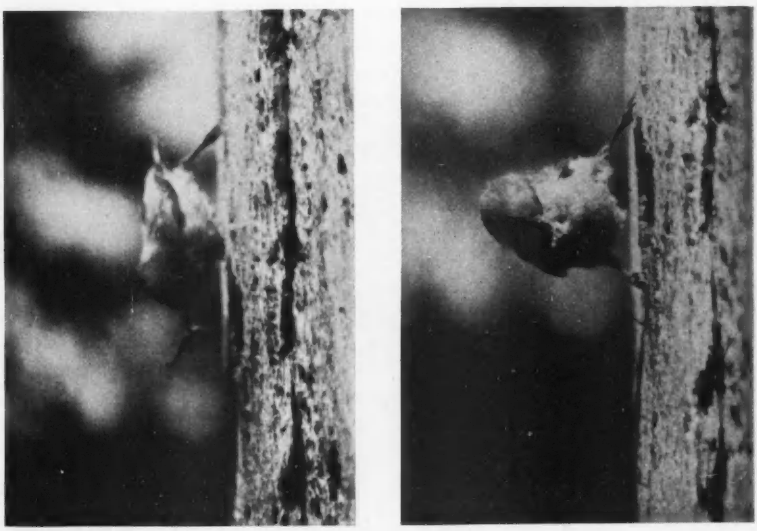

Fig. 16. PIGMY NUTHATCHES APPROACHING NEST FROM UP TREE BY DOWNWARD HOPS.

Each parent quite independently searched for and brought food, but occasionally one arrived at the nest when the other was inside and either went on in, or waited outside until the occupant came out. (See fig. 18.) Rarely the parent inside relayed the food brought by the other, taking it at the "door". A parent coming toward the nest often gave the chattering notes from the last tree perch (no trees were nearer than 50 feet) before flying to the nest tree. Until they became accustomed to my presence, the birds usually stopped on a limb up trunk, and then sidled down-tree to the nest. Even when they were used to me and flew directly to the nest, they always paused for one look at me before entering.

On emerging from the hole, there was a pause (figures 18 and 20) with body half out as if waiting until the eyes adjusted to the brighter light outside. On leaving, the birds often flew some distance, though occasionally only to the nearest tree. The flight usually ended 50 feet or more up tree. When a fecal sac was brought out, it was not dropped in flight but was carried out and left attached to some high limb. One particular limb of another tree received it on more than one occasion that I saw. After depositing the feces the bird wiped and rapped its beak on the limb vigorously. From figure 20 we may believe that on such errands the sacked feces are seized so firmly across their equator that the beak seems to be closed.

Fig. 17. PIGMY NUTHATCH ABOUT TO ENTER NEST CAVITY.

Sometimes a parent worked up the trunk of the nest tree and squatted in a crotch as if weary. At times, in moments of apparent relaxation, I detected a distinct yawn, possibly a reaction from muscles tired by long holding of food carried. Occasionally a parent with food staid up tree and finally ate the food itself. A couple of grown-ups, perhaps from the last brood, sometimes teased for the food being brought to the younger brood, but received no consideration. The food brought varied: spiders, moths, worms, perhaps big red-bodied ants, for so they looked.

Figure 21 shows a large fly which looked like a *Protocalliphora* and which, after some circling, finally entered the nest cavity. Several times such a fly was observed about the entrance, and I dare say its blood-sucking progeny preyed on this brood of nuthatches. On many occasions I have seen these blue flies circling the entrance to nests containing the young of nuthatches, chickadees, and bluebirds. The soft material with which each of these birds lines its nest cavity furnishes an ideal nursery for the maggots of this destructive parasite.

Two years later, in late June, 1928, another nest of *Sitta pygmaea* was found, a stone's throw from the site of the nest observed in 1926. Young old enough to stand at the entrance looked well fledged.

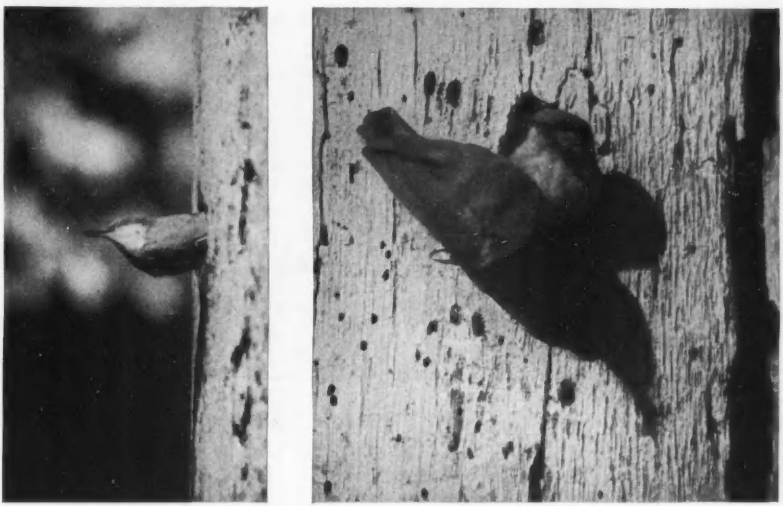

Fig. 18. LEFT: THE PAUSE BEFORE DEPARTING. RIGHT: A CHANCE MEETING, ONE PARENT EMERGING, THE OTHER WAITING TO ENTER.

Fig. 19. PIGMY NUTHATCHES: ONE PARENT LEAVING AS THE OTHER ARRIVES. NOTE VERTICAL EXTENSION OF WING AND DROOPING FEET.

Fig. 20. PIGMY NUTHATCHES EMERGING FROM THE NEST CAVITY WITH FECES FIRMLY HELD IN THEIR BEAKS. THE MATERIAL OF THE NEST IS REVEALED IN THE WIDE CRACK AT THE RIGHT.

Fig. 21. A BLUEBOTTLE FLY (RIGHT OF CENTER NEAR TOP) WHICH LOOKED LIKE A *Protocalliphora* AND WHICH LATER ENTERED THE NEST CAVITY OF THE PIGMY NUTHATCH.

One day as Dr. Tracy I. Storer and I stood near, a parent, grasping with its beak, seized a nestling by the shoulder, and after a rough tussle pulled the chick out and let it go fluttering to the ground. There, after a rest, during which parental solicitude obviously urged action, the fledgling fluttered along the ground directly to the base of a huge live pine near-by and began to climb. A yard or two at a time, intervalled by long rests, it finally worked up the trunk to the first limbs, some 50 feet. The astonishing thing was that this fledgling elevated itself up trunk mainly by rapid fluttering of its wings while keeping the body axis parallel with the perpendicular tree trunk, all the while pawing the bark furiously with its feet. Progress was slow, dangerously near no progress, it seemed.

Altadena, California, December 3, 1928.

NOTES ON THE FEEDING HABITS AND BEHAVIOR OF THE CALIFORNIA CLAPPER RAIL

WITH SEVEN ILLUSTRATIONS

By LAIDLAW WILLIAMS

The highway leading from Palo Alto to the Dumbarton Bridge across San Francisco Bay passes for some distance through typical bay marshes. On the north side there is a slough which follows the road closely for a mile or so. A California Clapper Rail, *Rallus obsoletus,* was seen on the exposed mud of this estuary at about half tide on November 10, 1928. The bird was quite unsuspicious when approached with the camera, and so opportunity was taken then, and on November 16, 23, and December 8, to make the following observations.

The bird seemed to have a regular forage beat which it would follow for about 200 feet up and down on the side of the slough toward the road, sometimes near the fringing grasses, sometimes close to the stream or wading in its shallow margins. Apparently it never crossed to the other side, even when the slough was almost dry at low tide.

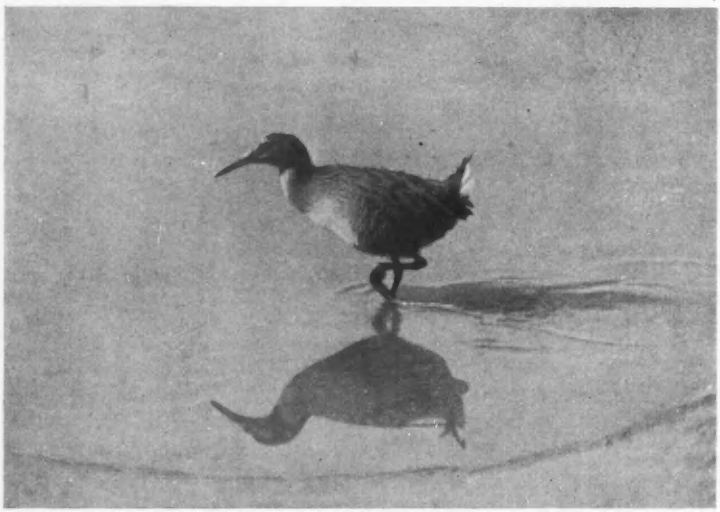

Fig. 22. CALIFORNIA CLAPPER RAIL PROSPECTING FOR FOOD.

The principal article of food proved to be a clam, *Macoma balthica* (Linnaeus), which it would procure and eat in a definite manner: This bird walked in the same general direction, pausing to make a probe here, then taking a few more steps (see fig. 22) to probe there. The bill was moved vigorously up and down in the mud during each insertion (see fig. 23). When food was detected it proceeded to dig it out by seizing bits of mud between the mandibles, bringing them out, and shaking them free. Once I counted as many as 41 loads thus removed before the prey was

Fig. 23. California Clapper Rail probing for food. The bill is inserted regularly up to the eye. At times the entire head goes under.

Fig. 24. California Clapper Rail carrying clam in bill to a "dabbling" place. December 8, 1928.

reached. Sometimes pieces of thick mud might be seen between the mandibles, but often it was so fluid as to be not more than mere drops sticking to the bill. A considerable hole was thus made, the bird often inserting the bill up to the eye (see fig. 23). Once the head was thrust in well beyond this point.

After the clam was dislodged and brought forth, the bird then took a few steps either to the edge of the main water of the slough or to some hole which contained water. Sometimes it was merely a depression containing a thinner concentration of mud: Here the bird dabbled the morsel in the water to clean it (see fig. 25). It was then swallowed on the spot, or as I observed on four occasions, brought to the shelter of the grasses or of *Salicornia,* apparently to be eaten there (see fig. 26). Sometimes this was done before being cleaned. While walking with the clam in the bill, the tail was often twitched nervously.

Fig. 25. CALIFORNIA CLAPPER RAIL RINSING FOOD (CLAM) IN WATER TO CLEAN IT. NOVEMBER 16, 1928.

On December 8, two hours of observation were made between 2:35 and 4:35 P. M. The tide was very nearly low when observations started. Before I left, the slough was reduced to a streamlet not more than a foot wide. A rail was seen in the grasses at the edge of an open place between the slough and the road. It was calmly preening itself, oblivious of trucks passing noisily on the highway not more than forty feet distant. But suddenly the stuttering cry of several Killdeers, rising from the mud, startled it, and with a flick of the tail it sought deeper cover. It reappeared again soon near the top of a bunch of tangled grass and resumed preening. After several minutes it moved off again onto the mud and headed west. It then started foraging as described above, working first westward, then eastward; then duplicating the process, and I last saw it again starting east.

During this time it swallowed food sixty times, or at a rate of one morsel every two minutes. This is counting as one swallow the various nibbles at the clam broken open. (See below.)

On three occasions it dug at its food but either was "on a wrong scent" or for some other reason did not exhume food. One of these occasions was when it located the closed but empty shell of a fairly large clam, brought it forth and struck

Fig. 26. CALIFORNIA CLAPPER RAIL TAKING BRIEF RESPITE ON CLUMP OF *Salicornia*.

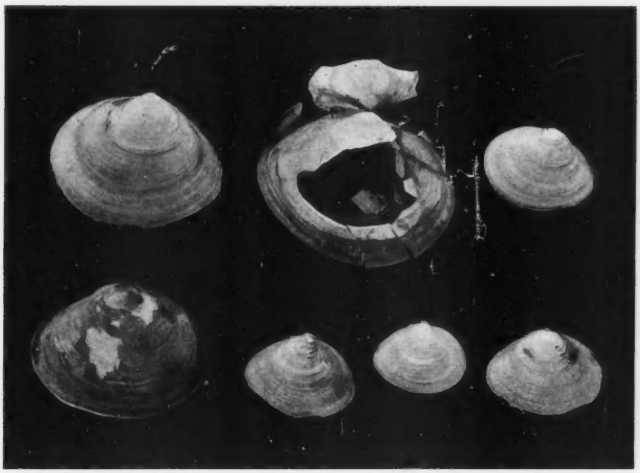

Fig. 27. Clams (*Macoma balthica*), x 1. THE SMALLER CLAMS ARE SWALLOWED ENTIRE BY THE CALIFORNIA CLAPPER RAIL. THE LARGER CLAMS ARE PECKED INTO, AS SHOWN HERE, AND THE MEAT PICKED OUT PIECEMEAL.

at it, whereupon the shell opened, revealing its emptiness. At another time, the bird brought forth twenty-one loads of mud, before, for some unknown reason, it gave up the work. Once the bird was observed to pick something right off the surface of the mud and eat it. Again, food was found merely by probing without digging.

Of the sixty times the bird was swallowing something, most of which appeared to be clams, only once did it break open the shell before eating. Several vigorous strikes on the shell of a particularly large clam (see fig. 27), broke a hole on one

side from which the edible parts were withdrawn by delicate nibbles. Near the edge of the grass I found a hinged shell, washed clean apparently by tides, which had a similar hole on one side. However, several clams with their shells entire which appeared to be only slightly smaller than these, were swallowed whole in two or three gulps.

Identification of the food eaten was obtained by driving the rail from the spot where it was digging and feeling in the mud with the hand. In this way, I obtained a clam at each of five different workings. The size of these clams is shown by figure 27. Snails, *Ilyanassa obsoleta* (Say), which were lying about on the surface of the mud, were apparently untouched by the birds.

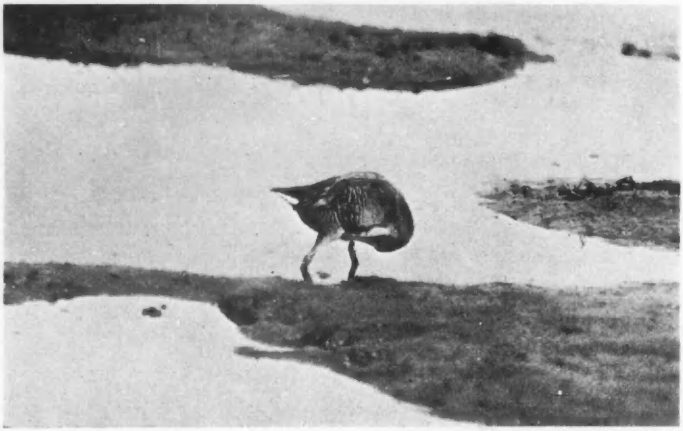

Fig. 28. California Clapper Rail preening. November 16, 1928.

On three occasions, a bird stood on the edge of a deep hole filled with water, and dipped in head first, immersing itself up to the back and breast, apparently trying to clean off the sticky mud which plastered its bill and face. Twice a bird was seen taking a more thorough bath. It rocked itself back and forth in the water by alternately ducking and raising the head, and at the same time raising and lowering the back. The wings appeared not to be used in the bathing process at all, except when the side of the head was rubbed on one of them, apparently to rid the ear of water.

On December 8, there was one rail which kept some distance from the bird under observation. It was most antagonistic towards a third rail from across the slough. Whenever this neighbor would approach too near, the other would rush at it, giving a loud squawk, resembling a note of the Coot. Sometimes, after the intruder had been chased back across the stream, this cry would break into the long, well-known cackling or "clapping", which was given with neck outstretched and bill wide open.

The birds were always unsuspicious and allowed the observer free movement, even when within twenty feet, provided these movements were not too brisk. And then the reaction was only to raise the head and twitch the tail slowly. Sometimes they approached within eight feet while carrying food to the grass. But the Killdeer's alarm note made them run with outstretched neck, full tilt for shelter.

Berkeley, California, December 27, 1928.

THE HARRIS SPARROW IN CENTRAL OKLAHOMA

By MARGARET MORSE NICE

The crown of the fall migration is reached when the Harris Sparrow arrives in Norman; as our most abundant bird and also our sweetest songster at this season, its coming gives the finishing touch to the pleasures of our winter bird life.

Season. For half the year *Zonotrichia querula* stays with us. The date of its arrival in the fall has not varied more than four days in six years: October 27, 1920; November 1, 1921 and 1922; October 29, 1923 and 1925; October 31, 1926. The latest dates on which they have been seen were May 6, 1920; May 3, 1921; May 13, 1922; May 12, 1926; and May 4, 1927. By the first or second week of November they are common, reaching their greatest abundance in December and January.

From January, 1926, to June, 1927, I took monthly censuses of an eight-mile tract of diversified country; the numbers of Harris Sparrows seen on this territory on each date were as follows: January 1, 1926, 293; February 1, 210; March 20, 92; April 24, 25; May 4, 20; November 13, 103; December 4, 170; January 8, 1927, 180; February 22, 72; March 26, 80; April 28, 36; May 5, 0. Besides showing the decrease in numbers toward spring, these figures indicate that fewer of these birds wintered with us from 1926 to 1927 than the year before.

The numbers of these birds seen in the Christmas censuses were: 1919, 82; 1920, 245; 1921, 280; 1922, 218; 1923, 450; 1925, 363; 1926, 260. These results are not as comparable as those of the eight-mile censuses, because a somewhat different route was followed each year, yet it is plain that these birds were much more common after 1919 than they had been before and that they reached their peak of abundance in 1923 and decreased somewhat after that. These conclusions were supported by our other field observations. During the winters of 1922, 1923, and 1925, Harris Sparrows were so numerous that they lived in gardens in town, but this was not true in 1926.

Behavior. Harris Sparrows are preëminently birds of underbrush; they frequent thick shrubbery along creeks and at the edges of woods, especially trees that are covered with vines. When alarmed, they, like Tree Sparrows, fly up, instead of diving into depths of cover as Song and Lincoln sparrows do. They often perch high in trees, a characteristic not shown by any of our other wintering sparrows except Tree Sparrows and an occasional Fox Sparrow. Harris and Tree sparrows and Juncos stay in flocks, mostly of their own species, all winter, while Song and Lincoln sparrows are solitary.

As to food, they eat poison ivy berries and elm blossoms, as well as weed seeds. At the feeding shelf, they were especially fond of canary and sunflower seeds, both of which they cracked, holding the latter flat in their bills.

In general we have found that *Zonotrichia querula* drove away smaller birds to some extent, but suffered, itself, from a special animosity from Cardinals. On April 29, I noted: "A Harris Sparrow is hopping about the kitchen door getting crumbs. He is a loquacious creature, chattering to himself, stopping every now and then to give a fragment of his sweet song. A young English Sparrow happens to come near—he flies at it viciously!"

My feeding shelf on the window sill five feet from my desk afforded me many opportunities to observe character. I will quote a few passages from my record of 1924.

"January 19. Distinguished guests today—three Harris Sparrows arrive, all in the palest plumage. One is a tyrant, driving away the other birds; after he has eaten enough, he settles down upon the water dish and rests, while five English Sparrows, the White-crown, the Plumbeous Chickadees and two of his own kind sit about in the bushes and wait."

"March 19. Snowy. No less than five Harris Sparrows are feeding on the shelf at once. Later, six are about, opening their bills at each other, 'scolding' a little. Trap and band four; they were all gentle when handled, making a kind of chippering note in the cage. The first, when released, alighted near-by and shook himself, but failed to notice the band."

Although these did not re-enter the "Ever-set" trap, I knew them apart, for 65948 was the only one banded on the left leg, 70465 had a larger band than the others, 65949 had no black on his chin, while 65950 had a great deal. All four were heard singing in April. (Hereafter the last digits of the numbers in the preceding paragraph will be used to indicate the individual concerned.)

Number 5 returned to the shelf two hours after being banded. He came occasionally till March 31, again on April 9 and regularly from April 24 to 28. Number 9 proved our most faithful patron for he came every day till April 20. Number 8 came nearly every day till March 31, and in April was recorded on the 5th, 9th, 10th and 17th. Number 0 failed to appear at all until April 16; then he came several times a day until the 28th.

Number 9 had an amusing habit of sunning himself on the shelf, lying down stretched out to the left, even doing this while eating. Later 0 sunned himself, but the other birds never did. Sometimes 0 chased 5 away, but in general they were amicable. They both sang a great deal during the last five days of their stay, almost entirely with sweet notes.

The next winter we did not spend in Norman, but on January 8, 1926, a Harris Sparrow in adult plumage, banded on the left leg, came to the shelf. Unfortunately, because of the ferocity of a very disagreeable male Cardinal, I was not able to trap him and make absolutely sure that he was 65948, as I believed him to be. He was less friendly this year than in 1924, coming to the shelf only during snow storms—on January 8 and 21 and March 30. (On the last date the trap had been lent to a neighbor who had taken it out of town.) We had a different Cardinal now, of a pleasant disposition; at one time the pair of Cardinals, the Harris Sparrow and four English Sparrows were eating in peace together. *Zonotrichia querula* scratched in the snow with both feet and sometimes held up one foot to warm it in his feathers. The English Sparrows were in a quarrelsome mood that day, fighting among themselves; a male pecked the Harris Sparrow on the breast and a female drove him away when he tried to alight. I heard him singing and recorded him on our grounds until April 13, the last time I ever saw him.

Plumages. The fully adult plumage is unchanged throughout the year except for the cheeks; in the winter they are buffy, in late spring and summer gray. (A molting male in the American Museum with but one feather in his tail taken at Artillery Lake, Mackenzie, August 6, 1907, has one cheek of each color!) In the breeding plumage the irregular spot just back of the upper posterior auricular region is either black or dark brown; in winter it is brown.

Among Preble's and Seton's specimens in the American Museum there are ten birds collected near Great Slave Lake in September. One, taken September 4, is a full grown bird in the nestling plumage. The others all have white chins and throats. Their crowns differ a good deal, but all have a more or less scaled appearance, for the feathers are black centrally, margined with pale grayish buffy; in the least mature birds the effect is predominantly buffy. Five have lighter chest patches than the other four (one bird having only a few speckles); in the first group they are brownish, in the second very dark brown. The crowns of the former are more buffy than those of the latter. The crown feathers of one of the second group are broadly margined with grayish buffy, but in the others they are narrowly margined, giving a conspicuously squamate effect.

The acquirement of the solid black crown is a more regular process than the blackening of the throat and chest. On March 1, 1926, I noted in a single flock, "two black hoods and fourteen in various stages of becoming black, each one different from every other; all fourteen crowns in the speckle stage."

In 1924, I was able to watch the development of plumage in my four banded birds. On January 19, the three (numbers 8, 9 and 5) that came to my shelf were plainly immature, with no black on the chin, throat or chest. "The abrupt change between the white throat and brownish chest patch gives the effect of an Easter rabbit whose head comes off. The bill and legs are pinkish. On the 26th the three return, all looking different, for their heads are speckled on top in distinct lines." February 15, "one reappears, his head is darkening in two places in the center."

No. 65948: March 19 to April 9: chin black, throat white; by April 9, the crown was nearly solid black in front.

No. 65949: March 19, chin and throat white; April 7, chin black just below bill, small black spot at base of throat; April 9, crown nearly solid black in front; April 16, crown almost wholly black, black appearing at sides of throat.

No. 70465: March 19, chin largely black, throat white except for two small spots at base, crown darker than the preceding birds; April 9, chin wholly black, throat white except for black bar at base; April 24, almost all the black plumage assumed, but less black on the left side than the right, cheeks partly buffy, partly gray.

No. 65950: March 19, chin black, throat black except for lower third; April 16 to 25, throat black, crown entirely black except for two small buffy spots over the bill.

In May all the birds have black hoods, but in the fall this is true of only a small proportion. My estimate was one-tenth to one-twentieth of the population with about a third intermediate in plumage, having some black on the chins and throats, and darker chest patches and crowns than the most immature birds. Unfortunately I have counts on only four small flocks; in these there were 8 black hoods and 38 others. Cooke (*Auk*, I, 1884, pp. 334-335) wrote on December 25, 1883, in Caddo, Indian Territory, "possibly one out of a dozen was thus attired [that is, in the black hoods], while probably half of them showed black feathers among the brownish ones of the throat and breast. The rest had no sign of a black throat-patch and but little black on the head."

The question arises as to the age at which the black hoods are retained throughout the year. It seems evident that not more than one brood a season can be raised by these birds, since they must reach Great Slave Lake and Hudson Bay some time in June, as the average date of the last one seen in northeastern North Dakota was May 30 (Cooke, *Bird-Lore*, XV, 1913, p. 301). The only nesting data on

this species consist of Preble's finding young just out of the nest July 24 and 25, 1900, at Fort Churchill on Hudson Bay (N. Amer. Fauna No. 22, 1902, pp. 120-121), and Seton's discovery of a nest on the ground with "three young nearly ready to fly", August 5, 1907, at Artillery Lake, Mackenzie (*Auk*, xxv, 1908, p. 72).

It is plainly impossible for the "black hoods" to be the parents of all the rest, since that would mean from eight to twenty-two or more offspring each season for each pair. Some of the evidence points to the conclusion that they are two years old: the three kinds of plumages in the winter flocks, and the adult plumage of my banded bird that had been immature two years earlier—maledictions on the head of that Cardinal that kept me from trapping him and also on the neighbor! If this is true, the proportions of black hoods in the fall flocks should be higher than one-twelfth to one-twentieth; one-sixth to one-tenth suits the probabilities better. But it is a complicated matter to juggle figures over the problems of increase and survival in a bird population. This question can be settled definitely by those fortunate bird banders in the middle west who trap Harris Sparrows; I herewith earnestly charge them to take most careful notes on the plumages of all the individua'ls of these fine birds that come into their hands.

Voice. Harris Sparrows have a wide repertoire in their winter home:

1. A gentle *tseep*, not often heard.

2. A loud, staccato *tchip*, sometimes given singly, sometimes several in succession. This is the common call note. At night-fall a flock of Harris Sparrows will utter a great many of these notes, much like the bed-time hubbub of White-throats, but less loud and less prolonged. Often nothing is heard but *tchips*, but sometimes the song and "scold" also occur at this time of day.

3. The querulous exclamation or "scold", a curious, grating, chuckling series, unlike any other bird note with which I am acquainted. It does not seem to indicate displeasure, but perhaps is conversational in nature. It is heard by itself and also during winter interspersed freely with the beautiful notes of the song. Nothing could be more incongruous than this mingling of serene beauty and absurd grumblings.

4. The song consists chiefly of clear minors of different pitches, besides which there is an occasional low husky note repeated three or four times. Singing is heard from early November all winter long on pleasant days, and most of all in April. Preble (*loc. cit.*) states they "heard no song" at Fort Churchill from July 23 to 30; but Seton (*loc. cit.*) "found this species in full song September 3" in the Great Slave Lake region. Toward the end of their stay with us the querulous notes become fewer and fewer till in some songs they have entirely disappeared. The winter notes of the song are often very like some of those of White-throats at the same season, but in spring there is no difficulty in distinguishing between the two species, because both sing full songs at this season.

On April 26, 1926, at 2 P. M. I recorded two fragments of a song on our grounds. In the following transcriptions of them h means high note; l, low note; i, intermediate in pitch; kee, husky note.

hhhhh ll hhhh l ll hhhh lll hh ll ll hhhh ll hhh hhh lll hh ll l i hhh.
hhhh ll ll h ll hhh ll i hh hhhh ll h lll kee kee kee kee scold scold hh ll ii hh i l.

There was a very slight interval between phrases. High notes were given singly, in two's, three's, four's, and once five in succession. Low notes were given singly and in two's and three's.

The most beautiful song of a Harris Sparrow in my experience was heard April 24, 1926, at 7 A. M., a mile from our grounds. I recorded a continuous song

for about eight minutes, not, however, getting the beginning or end; intervals between each two of the last five minutes are indicated on the record by colons. In this song there were only two pitches—high and low, and the husky note was absent; the general scheme seemed to be two or three high notes and then two low, but there were continual variations. There were never more than three high notes together; and only once, more than two low notes in a phrase. The regularity of timing is shown by the numbers of notes in each of the five minutes —35, 34, 34, 34, 36.

hhh ll hhh ll ll hh ll hh l hhh l ll h l l hhh lll hh ll hh ll hhh ll h l hh ll hh ll hh ll hh ll hhh ll hh ll hhh ll hhh hhh ll hh ll ll ll hh ll hh ll hh ll ll hh : hhh ll hh l hh ll hh l ll ll hhh ll hh ll hhh ll hh : ll hh ll hh l ll hhh ll hh l hhh ll hhh ll hhh ll : hh ll hh ll hh l hh ll ll hhh ll ll hhh ll hhh ll : hhh ll ll hhh ll ll hh ll hh ll hh hh ll hh ll ll : hh ll hhh ll hhh ll hhh l hhh ll hh ll ll hhh l hh l.

Nothing could have been more perfect in its way. It was of exquisite sweetness, the very spirit of serenity and peace.

Columbus, Ohio, October 5, 1928.

NOTES ON WATER BIRDS AT MORRO BAY, CALIFORNIA

WITH THREE PHOTOS BY JOSEPH DIXON

By JOSEPH GRINNELL and RICHARD HUNT

The following notes which seem worth putting on permanent record are based upon specimens and field notes contained in the Museum of Vertebrate Zoology. These were obtained by a party from the Museum working in the fall of 1918 in the vicinity of Morro Bay, San Luis Obispo County, California (see, especially, San Luis Quadrangle, U. S. G. S.). The objects of the field work were of a rather general nature, but chiefly to test out the behavior geographically of the terrestrial vertebrates in this portion of California's coast belt. The particular information set forth in the present article was thus secured incidentally to other activities. The party consisted of Joseph Dixon, Halsted G. White and the senior writer, and work was continued by one or another of these persons from September 18 to November 7.

The junior author's contribution to the present report consisted in analysis and compilation of the field notes, with subsequent careful revision in collaboration with the senior author.

Admittedly, then, these notes are fragmentary, nowhere nearly as thoroughgoing as if the time of even one man could have been devoted continuously to observations upon the water birds. Furthermore, no observing was done outside the surf line; so pelagic birds were missed. But even so, there are facts here given, especially in regard to certain shore birds, that appear to add materially to previously published knowledge. The geographic position of Morro Bay on the coast of California makes our record of occurrences there noteworthy in comparison with the reports of Loomis and Beck from Monterey Bay to the northwestward, and of Torrey, Bowles and Howell, and Dawson from Santa Barbara to the southeastward. No doubt, concentrated attention to the water birds at Morro Bay, where conditions are so very favorable for them, would disclose the regular presence there of a number of species additional to the present list.

AEchmophorus occidentalis. Western Grebe. Came to notice first on October 14, when two individuals were seen close in-shore along the exposed coast near Piedras Blancas lighthouse, some 35 miles northwest of Morro Bay. These birds were repeatedly diving in the rather shallow water inside the outermost reefs, where at the time there was little or no breaking of the surf.

A Western Grebe was watched by Dixon, who carried constantly and used judiciously a good pair of 8-power binoculars, on a sandy beach in Morro Bay, October 23. The bird went ashore voluntarily and proceeded to preen its feathers. In landing it swam into two inches of water, then started up with wings flapping as if about to take flight, but instead of clearing the ground altogether, it progressed two or three feet on its toes with the tarsi entirely off the ground and with body in nearly a vertical position. The bird then ceased to flap and sank down on its tarsi and scrambled forward a foot or two farther. At this point, it lay for several minutes on its side in the dry sand "combing" the feathers of its breast with its bill. When alarmed, the bird again assumed an upright position and started back toward the water, walking on its toes, not on its tarsi. After reaching water of sufficient depth it swam a few yards and then dove. The imprints of the bird's feet on the wet sand showed no trace of contact with the tarsi. As far as the observa-

tion went, on this particular individual, then, this species of grebe may progress on land by walking on its toes.

A Western Grebe shot on Morro Bay, October 27, proved to be a male (no. 29556, Mus. Vert. Zool.), and weighed 714.2 grams. Numerous minute white filaments (residual portions of the natal down), adherent to the tips of the blackish feathers along the sides of the neck, show this individual to be a bird-of-the-year.

Colymbus nigricollis californicus. American Eared Grebe. American Eared Grebes were frequently seen in both salt and fresh water ponds north of the town of Morro. Between dates September 19 and October 24, fourteen individuals were seen; two of them were in a brackish lagoon near the mouth of San Carpoforo Creek.

Three females were collected (nos. 29557-59). Their weights in grams are as follows: 221.3, 251.4, 195.0. The last seems abnormally small, as further indicated by the following dimensions in millimeters: wing, 121.5; tarsus 41.0; culmen 19.8. This specimen when skinned was found to be very lean. The feathers of the breast in particular, and of the lower surface in general, were stained with asphaltum. The color of the iris was recorded for each specimen, using Ridgway's Color Standards and Color Nomenclature (1912) as basis of comparison. The tint was buffy white, according to one collector, and capucine yellow according to another.

Podilymbus podiceps. Pied-billed Grebe. One seen October 17 in a marshy part of Morro Bay two miles southeast of the town of Morro.

Gavia immer. Common Loon. Three or four individuals were seen at different times on the open bay. One female was collected, on October 27 (no. 29560). Its weight was 1895.0 grams; wing 310 mm.; tarsus 81.4; culmen, 69.5.

Stercorarius parasiticus. Parasitic Jaeger. Three individuals were noted along the ocean shore within two miles north of Morro, September 19, 27 and 28; in each case the bird was harassing or mauling a Royal Tern. The colors of soft parts were recorded from an immature male (no. 29561) shot September 27, shortly after the bird was killed, and were as follows: bill sepia at base, black at tip; iris hazel; feet and legs black, with one small spot of sky blue on left knuckle and two on right knuckle. The weight of this bird was 471.4 grams.

Larus occidentalis. Western Gull. Commonly seen flying singly or two or three together along the ocean beach or across the outer sandspit to the bay. Up to twenty-nine were seen at one time, but there were no such large congregations as one sees in the case of other species of gulls, migratory species that winter on our seacoast.

An immature male (no. 29562) taken one mile north of Morro, October 2, weighed 960 grams. Colors of soft parts were as follows: bill dusky, almost black; iris hazel; feet pale ecru drab.

Larus californicus. California Gull. This and the following species were seen in small numbers throughout the period of observation, occurring both along the ocean shore and on tidal waters. Two flocks of seven each, seen along the outer beach of the spit on October 6, comprised the greatest number seen in one day by one observer.

Two immature birds were taken near Morro, September 20 (no. 29566) and October 8 (no. 29563). The first, a male, weighed 600 grams; feet and bill "pale ashy blue". The second, a female, weighed 478.5 grams.

Larus delawarensis. Ring-billed Gull. Two adult males were taken (nos. 29564,-65) on October 8 and 22. Weights and colors of soft parts are as follows: 553.2 and 489.1 grams, respectively; bill (in no. 29565) mineral gray with black subterminal "ring"; iris pinard yellow; feet and legs maize yellow, claws black; mouth (inside) peach red.

Larus heermanni. Heermann Gull. On October 2, about five were seen flying along the outer beach near Morro Rock. An adult female collected at that time (no. 29567) weighed 433 grams. The color of the iris was hazel, feet and legs black, and bill brazil red with black end.

Thalasseus maximus. Royal Tern. Royal Terns were seen each day of observation from September 19 to November 3, feeding or flying leisurely along the outer beach just beyond the breaker line. Also, when the tide was low, exposing several sandbars, the birds would flock together in large numbers inside of Morro Bay. On

one occasion (October 23) ninety-six were seen resting at one time on these sandbars. Approximately four-fifths of the terns seen during the entire period of observation belonged to this species.

The terns were rarely seen to rest on the exposed ocean beach, but were there always in flight. They seemed to know the tidal program, for at the uncovering of the sandbars, with ebbing tide inside the bay, the birds could be seen approaching for several miles along the sea-coast. Said sandbars afforded a safe retreat from nearly all enemies, since they were entirely surrounded by water. There the birds could take full advantage of the seemingly necessary daily period of rest and preening. The Royal, Elegant and Forster terns would often collect together on the sandbars, and when approached in a row-boat it was noted that they would take flight as to species in the order just given, which is the order in decrease of size. In other words, the larger the bird the shier it is.

Weights, and colors of soft parts, of the nine Royal Terns collected are as follows:

No. 29568, male, September 22: weight 532.5 grams; bill orange with straw yellow tip, feet and legs black, soles of toes dirty ochre yellow, iris hazel.

No. 29569, male, September 22: weight 456.5 grams; soft parts same as in preceding.

No. 29570, female, September 29: weight 510 grams; bill salmon yellow, feet and legs black, sole of foot salmon yellow, middle and outer claws white, inner one whitish; iris hazel.

No. 29571, female, September 29: weight 466.3 grams; bill salmon, feet and legs black, soles of toes salmon, claws black, iris brown.

No. 29572, male, September 29: weight 478.2 grams; colors not recorded, but as seen on dried skin appear to be about the same as in no. 29568; claws black.

No. 29573, male, October 17: colors of soft parts on dried skin about the same as in no. 29568, except that there is more straw yellow on tip of bill; feet, legs and claws black.

No. 29574, male, October 17: dried skin shows bill to be more yellowish than no. 29568; feet, legs and claws black.

No. 29575, female, October 22: dried skin shows bill to be more yellowish than no. 29568; feet, legs and claws chiefly black.

No. 30317, male, October 2: weight 482 grams; skeleton, only, saved.

No. 29576, immature female, October 2: weight 452 grams; examination of dried skin shows bill to be darker (dusky tinged) than no. 29568; feet and legs much more blotched with salmon color.

The average weights of three seemingly adult males is 489 grams, of two females 488 grams. Thus the sexes are probably identical as to size.

Thalasseus elegans. Elegant Tern. For full account of the occurrence of this species at Morro Bay and for matter relating to the specimens taken, see Grinnell, Condor, XXI, 1919, pp. 230-234.

Sterna forsteri. Forster Tern. The Forster Tern was positively identified around Morro Bay on various dates from September 23 to October 20. It was less numerously represented than the Royal, more numerously than the Elegant. Two examples preserved: nos. 29584-85, October 17 and 20.

Sterna hirundo. Common Tern. The only specimen of this species secured during the trip, and thus positively identified, was taken by Dixon, September 29, on a sandbar of Morro Bay from a flock "of about thirty". This bird, no. 29586, male, weighed 112.8 grams; feet brick red; iris dusky violet blue; bill, brick red at base, tip light. The outer webs of the outer tail feathers are light gray, not white.

Sterna paradisaea. Arctic Tern. This tern was recorded on October 2, 4 and 23 by Dixon. He estimated the number present on Morro Bay on October 23 at ten. Since both Common and Forster terns were present, and proved easily confusable at a distance, the relative numbers of *paradisaea* remain in doubt.

Phalacrocorax auritus albociliatus. Farallon Double-crested Cormorant. On September 20, between three and four hundred Farallon Cormorants were seen gathered together on the mud flats near the upper end of Morro Bay. Thereafter noted in small numbers, usually 2 to 6 flying over the bay, or standing on the crests of sand dunes on the sand-spit. Many were seen at times swimming in a pond at

the mouth of Morro Creek, and occasionally one was seen over the surf along the ocean beach. The yellow of the gular patch showed plainly at a surprisingly long distance when looked for.

A Farallon Cormorant in flight was seen to turn his whole head and neck back over his body to look at a fish which appeared at the surface of the water behind him. In doing this the bird set his wings, and coasted for a moment.

The numbers of dead cormorants found along the bay shore might indicate that some form of poisoning was active among these birds. Dixon recorded of one sick Farallon Cormorant found sitting on a bunch of cast-up sea-weed just above the reach of the incoming tide, that both eyes were shut, and the eyelids tightly gummed together. The bird's tail served as a prop which enabled it to keep upright posture, and the head was tucked back over the bird's shoulder, with the bill tucked under one wing, or at other times hanging loosely at one side. Not much attention was paid to sound, but the cormorant always struck back with its bill when touched.

Phalacrocorax penicillatus. Brandt Cormorant. Three of these cormorants were observed along the rocky sea-coast near Piedras Blancas lighthouse, October 8, one in flight, two perched on the pinnacle of an outlying reef.

Phalacrocorax pelagicus resplendens. Baird Pelagic Cormorant. Four were observed by Dixon, October 8, on a large rock off-shore, two miles south of Piedras Blancas.

Pelecanus erythrorhynchos. American White Pelican. Six were observed by Dixon, September 19, on a sandbar island near the middle of Morro Bay. On October 2 the number had increased to eight. White made record of four in the Bay south of Morro, October 27. Local hunters reported that between 100 and 200 White Pelicans wintered at Morro during the previous season (1917-1918).

Pelecanus occidentalis californicus. California Brown Pelican. Plentiful during the first few weeks of the party's stay at Morro, about 100 being recorded between September 18 and October 6. Later became much less common. The largest flock noted contained about 30 individuals. Small platoons of from 4 to 8 birds were seen skimming over the surf, diving for food just beyond the breaker-line, or (less commonly) settling on the mud-flats.

An immature male (no. 29588) shot over the Bay on October 31, weighed 5.1 kilograms and was excessively fat. Two two-inch fish were contained in the pouch.

An old fisherman interviewed was strong in his condemnation of the Brown Pelican as a destroyer of fish. Two Brown Pelicans were among the pelagic birds found dying or dead—the evident victims of some disease.

Mergus serrator. Red-breasted Merganser. A single flock of six was seen by Dixon in Morro Bay, September 22.

Mareca americana. Baldpate. One bird, an immature female, was obtained from a small fresh-water pond two miles north of Morro; and a few were seen flying over the Bay. Several were brought in soon after the opening of the shooting season, by sportsmen, who reported this duck the second most numerous on the upper part of the Bay.

Querquedula cyanoptera. Cinnamon Teal. Fourteen individuals recorded by White, in small ponds near mouth of Morro Creek. Two of these were seen September 24; twelve, October 14.

Nettion carolinense. Green-winged Teal. Six recorded by Grinnell the first morning out (September 19) in a slough north of town; seven observed in a slough at head of Bay, September 25. A flock of about 600 ducks, flushed by White from the mud-flats up the Bay, October 16, and evidently composed largely of Pintails, contained "a few" Green-winged Teal. One specimen, a female, was shot October 20 from a blind on a little island one mile south of Morro.

Spatula clypeata. Shoveller Duck. Two birds, only, recorded during the entire trip; these shot by White, October 20, from a blind on an island one mile south of Morro, and one of these saved for the Museum collection.

Dafila acuta tzitzihoa. American Pintail Duck. By far the commonest duck at all times during the party's stay at Morro. Between September 19 and October 17 close to 1330 individuals were recorded by Dixon and White (though there was undoubtedly some duplication of "counts"). On the last day of the trip (November 7) the Pintail was still the predominating duck. The flocks noted contained from 3 to 500 individuals; flocks of from 15 to 25 seemed to be of commonest size.

Three specimens were taken, an immature female (no. 29594, weight 824 grams), and two immature males. One of these (no. 29592), taken October 10, is in curiously mixed plumage. The head, in general effect dark brown, is considerably mottled, especially on the upper throat, with rusty and buffy remnant feathers from the juvenal. The back presents a patch-work appearance owing to the irregular encroachment of the first-winter plumage upon the juvenal plumage. The underparts are generally whitish with sparse splotches of dusky. Most of the tail-feathers including the central pair are of the juvenal crop, each with expanded, club-shaped end of rhachis. The feathers of the wing are entirely new, showing the light edgings of the lesser coverts indicating the first annual plumage of the male. The other male (no. 29593), taken October 14, is less far advanced in the post-juvenal molt. The head, back and entire underparts have a generally female-like appearance; all the tail feathers have the club-ended rhachis, the central pair most noticeably; the wings are like those of the other male. The specimen is unique among those in the Museum series in having a transverse white bar on the fore neck—the first indication of a replacement of the dusky-mottled (juvenal) breast feathers by the pure white adult underplumage. The bill of this bird was pale sky blue on top, black on sides; feet, pale Russian blue, webs brownish black. Weight, 937.7 grams.

Nyroca affinis. Lesser Scaup Duck. The only individual recorded was taken by White, October 27, on the Bay south of Morro. It is a female (no. 29595) with unusually conspicuous white loral-and-forehead patch. Weight 526.2 grams.

Charitonetta albeola. Buffle-head Duck. White saw a flock of seven, October 21, in a pond on the beach 2 miles north of Morro; and, on October 27, he noted that Buffle-heads were "becoming quite common". One bird was taken by Dixon from a flock of fourteen Coots, October 25, in a lagoon at the mouth of Morro Creek. This was an adult male (no. 29598), weighing 404 grams; bill dawn gray in front of nostril, slate gray at base; feet, pinkish vinaceous.

Histrionicus histrionicus. Harlequin Duck. The observation of an adult male on October 8, and of a pair on October 14, near Piedras Blancas, has been recorded in detail elsewhere. (See Grinnell, Condor, XXIV, 1922, p. 180.)

Melanitta deglandi. White-winged Scoter. Several large flocks totalling about 300 birds were seen flying beyond the surf-line, October 2, between Morro and 5 miles north of Morro; "a few" in the Bay, October 14; 12 diving in the Bay, October 16; flock of 7, with one Surf Scoter, in the Bay, October 31.

One immature female (no. 29599) was collected by White October 22; weight 1164.7 grams; bill fuscous black; iris hazel; legs and toes light cinnamon drab; webs black; claws black.

Melanitta perspicillata. Surf Scoter. Records of but five individuals appear in the notes: one seen, October 22; three, October 27; one (in flock of seven White-winged), October 31—all in the Bay.

Two birds were taken. The sex of one was not determinable by dissection, but the bird's small size (weight 820 grams), the almost white middle under surface, the lack of any red color or swelling in the bill, and the stubby ends of the tail shafts indicate a female of-the-year (that is, in juvenal condition). The other is a male, apparently adult, with unworn plumage. The bill is, however, relatively undeveloped, and the white forehead spot is much smaller than it normally is. Weight 1120.2 grams.

Erismatura jamaicensis. Ruddy Duck. Two individuals were observed by White, October 18, in a small tule pond up the coast north of Morro.

Branta nigricans. Black Sea Brant. A local fisherman stated that these geese come into the Bay about November 15 of each year in large numbers, but are so wary that few are killed. Other inhabitants of Morro substantiated this statement. Two Black Brant were killed by a hunter November 6; and the next morning a large flock was heard by Dixon "gabbling" as they fed on the mud flats at the east end of the Bay.

Botaurus lentiginosus. American Bittern. Five birds recorded: two, September 19, in fresh water slough north of Morro; two, the next day in same general locality; one, September 23, near mouth of Morro Creek.

Ardea herodias hyperonca. California Great Blue Heron. Frequently observed from September 18 to October 27, about thirty individuals all told being mentioned

in the notes. The birds were found around fresh-water ponds and creeks, on the mud-flats of the Bay, and in the salicornia marshes. A female bird was collected, October 17, in the salt marsh two miles southeast of Morro.

On October 15, Dixon watched one bird asleep on the mud-flats with head and bill tucked back under wing. It did not move, even to shift a leg, for twenty minutes, and might have been depending on the neighboring Godwits and Curlews to give the alarm if danger threatened.

Casmerodius albus egretta. American White Egret. One lone individual seen by Dixon on the marshes of Morro Bay, September 23.

Nycticorax nycticorax naevius. Black-crowned Night Heron. Recorded the first day (September 19) and at intervals till almost the last day (November 4). Flocks of about 25 individuals were usual. On September 22, Grinnell routed about this number of birds from their roosting place in a clump of tall willows in the middle of a large area of smaller willows, near the mouth of Morro Creek. Four days later, visiting the same general locality he saw "an unending procession" as it "began to leave the roost in the willows at late dusk, with variously intoned 'squawks'; all headed up Morro Creek bottomlands, not toward the beach." White recorded two sizeable flocks, the second, observed November 1, "flying in a straggling fashion to the upper end of the Bay." Two birds were heard at night, October 9, at San Carpoforo Creek.

Rallus virginianus. Virginia Rail. One record only—a male (no. 29603) in new unworn plumage caught in a trap set for meadow mice in tules, one mile northeast of Morro, September 26. Weight 86.3 grams.

Fulica americana americana. North American Coot. "Mud-hens" are not mentioned in the notes as particularly common. One was seen September 19; fifteen, September 24; and one, September 25—all in fresh-water ponds or lagoons near the mouth of Morro Creek.

Phalaropus fulicarius. Red Phalarope. Three observed by Dixon, along with about 75 Least Sandpipers, one Baird Sandpiper, and about 12 Northern Phalaropes, September 23—all gathered to escape the strong breeze, in the lea of a dense growth of salicornia in a shallow tidal pond. White found four, October 21, swimming in a pond on the beach; and Grinnell noted five, October 24, on the beach at upper tide line. The latter were darting rapidly here and there on the sand catching kelp flies. Their movements were similar to those used by phalaropes when swimming and dabbing this way and that on the surface of the water. Their plumage was nearly complete gray, making the bodies when in flight "look plainly gray and white". In silhouette the bodies of the flying birds looked "thick through—not slender as in typical shore birds".

The two birds-of-the-year collected October 24 are in predominantly winter plumage. The female shows the smooth tinge of light ochraceous-salmon on foreneck and behind the dusky auricular patch marking this sex in the juvenal plumage. Weight of male (no. 29606), 31.2 grams; of female (no. 29605), 39.8 grams.

Lobipes lobatus. Northern Phalarope. Flocks of about 15 were noted from September 19 to 29, by all three members of the party, on the Bay shore, and in both fresh-water ponds and tide-pools. On September 24, Grinnell saw "crowds" of them in the salicornia at the head of the Bay. Dixon recorded two, with three Wandering Tattlers, feeding on kelp flies on the beach two miles south of Piedras Blancas, October 8.

Two birds-of-the-year were taken, October 20 and 21, a male (no. 29608) and a female (no. 29607). Weight of male, 26.2 grams; feet and legs bluish gray. These specimens are closely similar in plumage, with entire under parts white save for grayish suffusion at sides of chest.

Recurvirostra americana. American Avocet. Not a common bird, only four individuals being recorded—at a brackish slough north of Morro September 19 and 22. One specimen (male, no. 29609) taken on the latter date had the feet and legs light bluish gray and bill black; weight 322.5 grams, lean. Gullet contained 21 little fishes, ⅝ to 1½ inches long, and a sand-flea.

Limnodromus griseus scolopaceus. Long-billed Dowitcher. On September 22, Grinnell recorded a hundred or more individuals; White, on October 6, saw "numerous

flocks"; by October 23, it was estimated by Dixon that the total number at Morro was only 30 birds, and he noted that they were then rapidly decreasing in numbers.

Dixon found the comparative approachability of these birds indicated by the following order in which shore birds took flight: Terns, Curlews, Godwits, Dowitchers, smaller sandpipers. In flight "they zigzagged back and forth like Least or Western sandpipers", and looked "comparatively dark". When a flock alighted the white patches on the middle of the back were "very striking". The preferred method of foraging of these birds was to probe in shallow water. One individual was seen by Dixon "to jump in and swim across a 4-foot channel that was too deep to wade", while the "rest of the flock flew across".

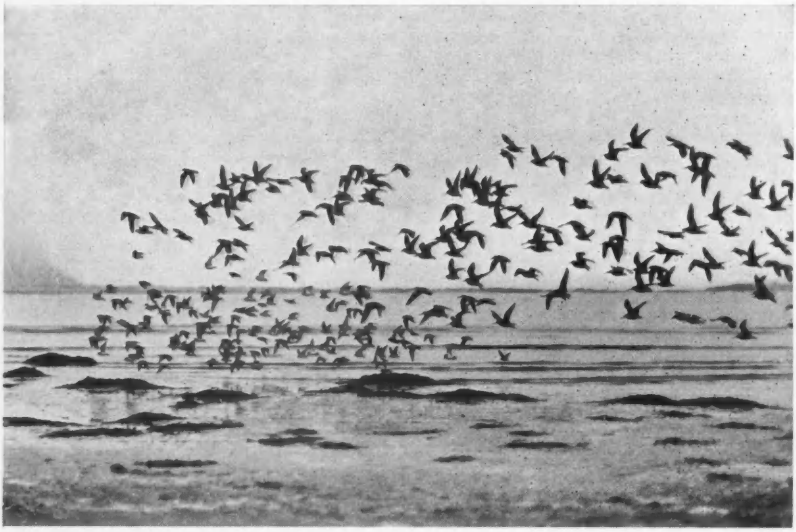

Fig. 29. LONG-BILLED DOWITCHERS IN FLIGHT (ABOVE SANDPIPERS); MORRO BAY, OCTOBER 4, 1918.

Of two immature females collected (nos. 29610-11) one weighed 107.5 grams; bill at base dark citrine, becoming dull black at tip; feet and legs dull citrine; iris dusky neutral gray. The other weighed 116.1 grams. An immature male (no. 29612) weighed 101.7 grams. The throats and breasts of all three specimens are generally brownish gray, with a dilute rusty tinge in the case of the two females.

Pisobia maculata. Pectoral Sandpiper. Two were observed by Dixon, September 23, partially hidden in the salicornia of a salt marsh at the mouth of Chorro Creek; only their heads, long bills and gray breasts showed.

Pisobia bairdii. Baird Sandpiper. Three were observed by the senior author, September 19, in a belt of kelp drift on the ocean beach north of Morro. One of these was taken, an immature male (no. 29614), with weight of 54.8 grams; feet plumbeous; bill black; iris hazel. What were probably the remaining two birds were seen the next day in the same neighborhood. Their much greater size as compared with the Least Sandpipers with which they part of the time associated was a good field mark; also the tawny chest band showed conspicuously. September 23 a lone bird was seen exactly where the first were seen in detached company of a few Least Sandpipers and Snowy Plovers. This bird, upon collection (no. 29613) was found to be an exceedingly fat female, weighing 60.3 grams; the bill, legs and feet were black.

Pisobia minutilla. Least Sandpiper. A common sandpiper at all times during the party's stay at Morro (specifically recorded September 19 to November 4). The total number was estimated, October 23 by Dixon, as 300. Flocks of from 8 to 250 individuals were recorded, these frequently being parts of mixed flocks, containing other small "peeps", Dowitchers, etc. This species was noted alike on the outer sea-beach and on the mud-flats and sandbars inside the Bay.

Dixon found the olive-green legs of the Least Sandpiper a reliable field mark. This field character was particularly helpful when binoculars were used.

While Dixon was photographing a flock of sandpipers September 23 in a salicornia marsh at the mouth of Chorro Creek he heard a blow struck and looking up beheld a Prairie Falcon (*Falco mexicanus*) poised over a dying Least Sandpiper. The rest of the flock took flight, swung about in compact order, and returned and lit, while the falcon was still hovering not three feet above them. The falcon, after three attempts to pick up the now dead sandpiper, left, evidently frightened by the human observer who was about 40 feet away. In attacking, the falcon slipped in close to the ground, and did not swoop down in the commonly reported manner.

Three specimens of the Least Sandpiper were taken (nos. 29615-17), all females. Two of them weighed 23.6 grams and 24.2 grams, respectively; the feet were dull green; nails and bill black; iris hazel.

Fig. 30. SANDPIPERS (MOSTLY WESTERN) ALIGHTING ON MUD FLAT LEFT BARE BY RECEDING TIDE; MORRO BAY, OCTOBER 4, 1918; MORRO ROCK, FOG-VEILED, IN BACKGROUND.

Pelidna alpina sakhalina. Red-backed Dunlin. First recorded on September 22 when the senior author watched ten or more on the mud-flats, bay side of Morro sand-spit. Last recorded on November 3 by White, who saw five on west shore of the same spit. The total number at Morro on October 23, as estimated by Dixon, was 250 individuals, and apparently then still increasing.

Flocks of from 4 to 10 birds seemed to be usual, though larger numbers were found in flocks with other waders. Dixon recorded 50 on October 6, with Dowitchers and smaller "peeps". On October 23 he saw a flock composed of Red-backed, Western and Least sandpipers numbering about 250 all-told. Four birds were observed by the senior author, October 14, near Piedras Blancas, in the vicinity of some Black Turnstones "and usually taking flight at their alarm, but quickly following a separate course and keeping together."

Three specimens were taken at Morro, September 22 and 29, and one near Piedras Blancas lighthouse October 14. Three females (nos. 29619-21) weighed 51.1, 48.0

and 53.4 grams, respectively; one male weighed 48.6 grams. Two birds (a male and a female) on which color notes were taken had bill, legs, feet and claws black. All are thought to have been birds-of-the-year.

Ereunetes mauri. Western Sandpiper. At all times found common about Morro Bay. Flocks of from 5 to 250 individuals were recorded, often mingled with other waders, when foraging. Estimated by Dixon on October 23 to well exceed in numbers the Least Sandpipers then at Morro.

Two immature birds were collected, a female (no. 29623) September 25, weighing 27.6 grams, culmen 26.9 mm.; and a male (no. 29622), September 22, weighing 22.3 grams, culmen 21.4 mm. Feet and bill in both, blackish. Red-edged feathers predominate in the dorsal plumage.

Calidris alba. Sanderling. Present from first to last, in flocks ranging from 12 to 20 birds, though the records do not indicate that the total number of individuals was at any time large. Dixon noted an increase in number, October 23. Records are as follows: September 20, about 12 "as usual, trotting back and forth at the surf line"; October 2, flock of 15, shore north of Morro; October 6, "numerous flocks" on ocean shore of Morro Bay sand-spit; October 23, fifteen, same location; November 3, about 20, west shore of sand-spit.

Two immature females (nos. 29624-25) were taken October 2; weights, 66.6 and 58.5 grams.

Limosa fedoa. Marbled Godwit. Numerous at all times during the party's stay at Morro, resorting mostly to the outer beaches but also congregating at low tide on the sandbars within the Bay. Prone to go in aggregations of from 20 to 50 individuals, though smaller groups were commonly seen. Total population around Morro estimated by Dixon on October 23 at 300.

Dixon noted that, next to curlews, godwits were the most wary of the waders. Flocks of 12 or so godwits would often use three or four curlews as sentinels. In contrast to the curlews, which foraged on the exposed flats, the godwits habitually probed in three or four inches of water, sometimes wading belly-deep and submerging the head and neck up to bend of wing.

The females are, at a distance, obviously larger than the males, with longer bills and shanks. Weights (in grams) of a series of eleven birds were: males, 361.6, 281.6, 380.7, 268.7, and 272.5, or an average of 313.0; females: 510.3, 420.0, 386.1, 447.9, 494.0, and 389.0, or an average of 441.2.

One male compared with Ridgway for colors of soft parts had the bill light brownish vinaceous on basal two-thirds, becoming black at ends of both mandibles; iris seal brown; feet and legs deep mouse gray; claws black. One female had bill pinkish at base, becoming black at end; feet and legs gray; iris hazel.

Totanus melanoleucus. Greater Yellow-legs. In September, two individuals were recorded on the 28th; one individual on the 29th. In October, four on the 8th; one on the 10th; three on the 14th; and eight on the 20th. The first two birds were found on the peninsula across the Bay; the eight last, on an island in the Bay one mile south of Morro; all the others, in a sand-dune-dammed pond one mile north of town.

Of the nineteen birds figuring in the above record, four were collected (nos. 29637-40), two males and two females. The latter are obviously larger, in body, bill and shank, than the former. Weights of males, 169.9 and 147.8 grams; of females, 182.4 and 176.6. Color notes for one male: bill, deep olive at base, dull black at tip; soles of toes and backs of legs aniline yellow; ankle in front citrine; iris dusky slate-blue.

Catoptrophorus semipalmatus inornatus. Western Willet. Present in fair numbers throughout the party's stay at Morro. Total number on October 23 estimated by Dixon at 175. Frequented both the open ocean shores and the marshy and sandy shores and sandbars of the Bay. Sometimes commensal with godwits.

Two specimens were taken October 2 and 3 (nos. 29641-42), both females. Weights, 340.0 and 375.1 grams. One had bill storm gray at base, tip black; feet and legs sky gray, claws black.

Heteroscelus incanus. Wandering Tattler. No tattlers were seen at Morro. At Piedras Blancas, near the lighthouse, on October 8, three were watched by Grinnell and Dixon. These birds were near one another on the rocky beach working over

a drifted mass of kelp. They gave violent ducking movements of the head, forward and recovery, every now and then, and practically all the time their hinder parts were in unstable equilibrium. When looked down upon, the tattlers were extremely difficult to see because of their absolutely uniform colors above. It was probably the same three birds that were observed in the same place, October 14, "feeding on the kelp flies which swarmed on the decaying rolls of kelp heaped up on the steep pebbly beach". One of the birds was collected, an immature male (no. 29643). Weight 147.2 grams, very fat; tarsi and toes, old gold; claws, black; bill, fuscous black, becoming light brownish olive at base of lower mandible.

Numenius americanus. Long-billed Curlew. The Long-billed Curlew was seen in unexpectedly large numbers in the near vicinity of Morro Bay. Flocks of from six to twenty-five individuals were commonly encountered along the ocean beach north of Morro, while from 25 to 100 were to be seen gathered together at certain stages of the tide on the mud-flats within the Bay.

The greatest aggregate number occurred at the time of our arrival, September 18; from that time on, an irregular but gradual decrease in numbers is apparent from a tabulation of notebook records. On September 19 two observers reported a total of 212 seen; on the 22nd three observers reported about 400 seen (of course a considerable duplication must be granted here); on the 25th, one observer saw 53; on the 28th, 40 seen by two observers—"less plentiful on the ocean beach of the sand-spit, 3 being the greatest number seen feeding together there while 25 were feeding together elsewhere." On October 5 one observer counted 30; on the 10th, 6 were seen; on the 12th, one observer saw about 20; on the 23rd, the total number of birds at Morro Bay was "estimated at 25"; on November 3 one observer saw 20. On the 7th, Dixon reported a "big decrease in numbers noted—a few birds found feeding in salicornia marsh two miles up the bay" instead of feeding on their accustomed mud-flats near the mouth of the Bay.

As regards field identification marks it was agreed that the chief ones were the long bill, the peculiar pinkish cast of plumage, and the very large size sufficient for distinguishing this species from all other waders. Curiously, not one of the smaller Hudsonian Curlew was seen throughout the period of the field work at Morro. That species had evidently entirely passed to the southward before September 18.

The two sexes in the Long-billed Curlew can usually be distinguished in the field. The female is noticeably the larger, with a longer bill and a much pinker flush over the body and wings. Besides the inferior size of the male it was thought that as a rule this sex shows more white on the wing coverts than does the female.

Long-billed Curlew were usually observed feeding in company with Marbled Godwits and Western Willets; and on such occasions the much taller curlews would "act as sentinels", and alarm the flock before approached well within gun-shot range. Further evidence of the wariness of this species was exhibited when Mr. Dixon was trying to take photographs; the birds took immediate alarm at the erection of a small burlap blind, and it was several days later before they would approach it or alight within camera range of it. Godwits, however, seemed to be only slightly concerned, and returned to the spot a few hours later. Of all the waders present the Long-billed Curlews were the least approachable, and in this respect they were out-done only by the larger of the terns. It was further noticed that the male curlews were more inclined to "circle about any strange object, and squawk more than the larger, female birds".

The birds collected were very fat, so were probably finding feeding conditions good. In the gullets of birds collected were found several sand-crabs (*Emerita*): one held 3, one 5, and another 1.

When probing on the mud-flats of the Bay, the curlews would (according to Dixon) take a stand some distance back from the water's edge, while the dowitchers fed in the shallow water near the margin, and the godwits waded some distance from the shore, and probed in water 3 or 4 inches deep. The probing of the curlews was more gentle than that of the godwits which, when feeding in 3 or 4 inches of water, would thrust their heads down so violently that the entire head as well as the bill went under the surface of the water.

The probing of the curlews was on one occasion watched by Dixon from a distance of 150 feet. One of the birds stuck its long bill down into a hole and "twisted the bill around until it looked as though the bird was trying to stand on its head. After several seconds of violent effort the bird withdrew its bill, bringing forth a long marine worm. The mud bars are perforated with these worm holes which are spaced about 6 or 8 inches apart. The holes are intercommunicating at a depth of 3 or 4 inches below the surface, and, in feeding, the curlews seem to keep probing until they chase the worm into a corner or else take him by sudden surprise. Three birds are frequently seen working within a six-foot circle, and their efforts may thus be to some extent cooperative."

One female curlew was found eating grasshoppers in a pasture near a road 4½ miles south of Morro. The bird was not badly frightened by the approach of an automobile, but flew a short distance inland and continued search for grasshoppers.

Colors of soft parts of five Long-billed Curlew examined shortly after shooting agreed closely irrespective of sex as follows: Upper mandible brownish or brownish plumbeous; lower mandible brownish lead-color at end, becoming pinkish at base; feet and legs ashy gray; iris hazel. The weights and measurements of the fifteen specimens taken, together with a discussion of variation within the species, have been recorded elsewhere (see Grinnell, Condor, XXIII, 1921, pp. 21-27).

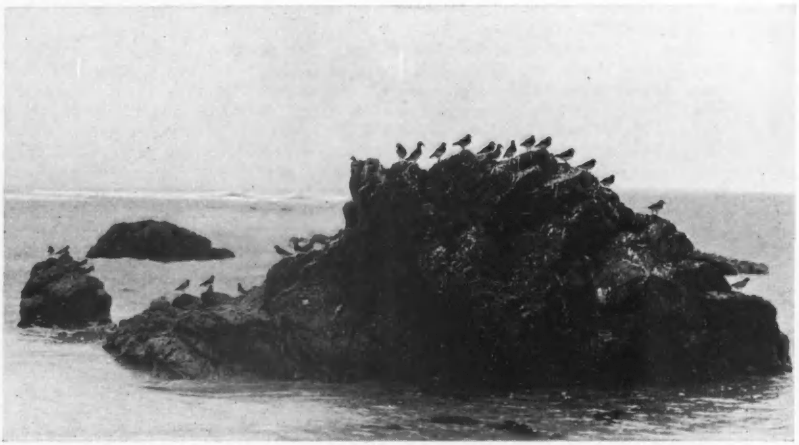

Fig. 31. BLACK TURNSTONES ON ROCKS, RESTING AT HIGH TIDE; TWO MILES SOUTH OF PIEDRAS BLANCAS, SAN LUIS OBISPO COUNTY, CALIFORNIA, OCTOBER 8, 1918.

Squatarola squatarola. Black-bellied Plover. About 100 were observed September 19 on the mud-flats in Morro Bay, opposite town. One of these was a cripple and was still largely in summer plumage, with striking black throat and belly. Twenty were seen two days later near the same place. Other records: flock of 6, October 1, one mile north of Morro; "a few", with dowitchers and godwits, October 4, on sand-bar in Bay; "numerous flocks", October 6, ocean shore of sand-spit; 113, October 23, on the sand-spit; about 20, November 3, west shore of sand-spit. The 113 birds observed on October 23 were thought by Dixon to include all the individuals in the vicinity of Morro.

Pluvialis dominica dominica. American Golden Plover. One record only—an immature male (no. 29659) taken by White, September 29, on the outer beach two miles north of Morro. No other waders accompanied it. Weight, 124.4 grams; bill, chaetura black; feet and legs deep dull gray.

Oxyechus vociferus vociferus. Northern Killdeer. Rather commonly met with, both along the shores and mud-flats within Morro Bay, and in plowed fields and moist

grassy tracts inland. Six specimens were collected (nos. 29660-65), all birds-of-the-year; weights (in grams) as follows: 84.9 and 82.4 (females); 85.7, 90.0, 77.7 and 78.2 (males).

Charadrius semipalmatus. Semipalmated Plover. First recorded on October 5 when a pair was observed by Dixon feeding on the mud-flats of the Bay. On November 2, four more birds were seen, by White, on mud-flats in a pond one mile north of Morro. Two of these were collected—immature males (nos. 29666-67), with weights of 48.6 and 44.6 grams, respectively.

Charadrius nivosus nivosus. Western Snowy Plover. Constantly present about the Bay, mostly scattered along the outer ocean beach, where usually foraging well up toward the dunes from the surf-line. Up to 40 were counted in a single day's rounds. One adult male collected weighed 41.0 grams; two immature females, 41.0 and 40.0. Legs of the male were gray; feet and claws plumbeous. The adult male, taken September 22, has the remiges in process of molt; two old worn outer primaries remain in the right wing, one in the left.

Arenaria melanocephala. Black Turnstone. Not recorded close to Morro. Near Piedras Blancas, on October 8, a flock of about 200 was met with by Grinnell and Dixon; and, on October 14, about 30 were seen in exactly the same place. The birds would perch on points of kelp-covered rocks on the steep beach 2 or 3 yards within the breaking surf. The flock of 200 on taking wing, gave rapidly uttered sputtering cries, insistent, but the volume swelling and dying, till the birds got settled again; then they were mostly quiet. These birds again took flight, at the appearance of a Duck Hawk, broke into smallish flocks, and maneuvered in wild rapid flight high overhead, with shrill clattering cries. They quieted down only after the hawk was well out of sight. When wholly undisturbed, individuals were seen to capture and eat kelp flies.

Museum of Vertebrate Zoology, University of California, April 9, 1925. [*Revised by the senior, and surviving, author, December 7, 1927.*]

FROM FIELD AND STUDY

The Horned Owl an Enemy of Barrow Golden-eye?—Twenty miles northeast of Vernon, British Columbia, at an altitude of approximately 1800 feet lies Rollings Lake, a shallow body of water comprising some 300 acres. On the north side a steep, timbered mountain slopes to the water's edge; otherwise the littoral consists of cultivated fields and patches of tule at either end of the lake. The water is rich in aquatic vegetation (*Potamogeton*) and usually swarming with fresh water amphipods, *Gammarus limnaeus*. The latter is a staple article in the diet of the Barrow Golden-eyes which frequent the lake. The bird-life of this lake, and the Barrow Golden-eye (*Glaucionetta islandica*) in particular, has been kept under observation, at irregular intervals, since 1916. At that time, and for several years following, these ducks nested chiefly in the many dead trees along the shore which years ago had been killed by a rise in the lake level. Within recent years most of these trees have fallen or been cut down, but the Barrow Golden-eyes, in somewhat smaller numbers, still nest in the vicinity and lead their broods to the lake which is the only suitable one in the district.

On June 4, 1925, a female of this species was observed leading 43 downy young all of about the same age. The following day this same concentration was seen but the band of young had been reduced to 30. On other parts of the lake a single downy and a group of three were swimming about unattended. These little chaps with necks outstretched glided rapidly over the water, making quick darts from side to side as if picking insects from the surface. At this time the female leading the large band was the only adult on the lake. The adult males had left a week or so earlier and the female parents of the three or four broods, now attached to a foster mother, had vanished. A flock comprising 2 males and 3 females which were obviously immature birds of the previous year was seen. It is believed that the Barrow Golden-eye does not breed until the second year.

It is suggested that Horned Owls (*Bubo virginianus*) were responsible for the disappearance of the missing females. Along the rough, wooded shore on the sheltered north side of the lake are a number of fallen trees, their butts anchored on shore, their trunks slanting into the water. Thus firmly anchored, half in the water and half out, and worn smooth by years of weathering, these tree trunks are used as resting places by Barrow Golden-eyes of all ages. At one time it was common to find three or four such sites each occupied by a female and her brood; another perhaps holding a band of non-breeding birds of both sexes. It is not known if the ducks roost at night on these logs but such is believed to be the case.

In the concealing brush near the water's edge, or on stumps or logs in the forest, one sometimes finds the remains of a Barrow Golden-eye—perhaps a half-eaten carcass, more often a wing, a foot, or a collection of feathers. During recent years Horned Owls have been more than usually plentiful; one hears them hooting from the thickly timbered mountain side, and the evidence points to this predator as the chief, if not the only, local enemy of the Barrow Golden-eye.—J. A. MUNRO, *Okanagan Landing, British Columbia, January 15, 1929.*

Bears and Hawks' Nests.—In regard to an observation of mine quoted by Mr. Taverner (Condor, XXX, 1928, p. 157) as to the supposed habit of the black bear climbing trees which contain hawks' nests in quest of eggs or young and Professor Rowan's comments thereon (Condor, XXX, 1928, p. 246) I am bound to admit that the evidence is purely circumstantial. No observer to my knowledge has actually witnessed the proceeding, although I have reliable information from an eyewitness as to a wolverine doing this very thing, and the evidence is strong as regards the bear.

It is well known that the black bears will eat anything edible in spring, from poplar leaves to carrion. One old Indian hunter at Battle Prairie informed me that they even hunt and eat snakes at this season, so that it is not likely that the eggs or young of hawks and owls would come amiss.

It is certainly true, as Professor Rowan remarks, that the number of trees containing hawks' nests that are climbed is only a small percentage of the total number climbed by bears. It could not be otherwise, as the percentage of trees in the woods containing hawks' nests is infinitesimal as compared with those which do not contain them and the bears climb many trees for the purpose of feeding on the young leaves of the poplars. The trees Professor Rowan mentions as being heavily scarred, as if particularly popular, though they did not contain nests, were most likely those climbed many times by the cubs in play.

The chief argument in favor of the theory that the bears do climb trees containing hawks' nests in search of eggs or young birds seems to have escaped Professor Rowan's observation; that is, that while the percentage of trees climbed by bears is infinitesimal compared with the total number of trees in the woods, and the percentage containing hawks' nests is a still smaller number, yet the number of trees containing nests which are climbed by bears is a large and very noticeable percentage of the nest-carrying trees, far too many in proportion to be a "fortuitous combination and mere coincidence."

I regret now that I did not make an actual count of the trees with nests, and the number of these which showed scars of climbing, which I observed in the Peace River country. I may say that I have observed the same condition in the vicinity of Belvedere; but as bears are much scarcer here the percentage of nest-carrying trees climbed is much less noticeable than in the Peace River country where the black bear is still plentiful.

The mere fact that trees containing hawks' nests, and bearing scars showing them to have been climbed by bears, have been observed at such widely separated points as the Buffalo Park near Slave River, at Battle Prairie, and at Belvedere, would go to show that tree-climbing is no accidental occurrence but probably a regular habit of the black bear. However, for conclusive proof we will have to wait until some observer is fortunate enough to surprise our friend "Muskwa" in the act.—A. D. HENDERSON, *Belvedere, Alberta, December 15, 1928.*

Vermilion Flycatcher Breeding in Coachella, California.—It gives me exceptional pleasure to record the breeding of the Vermilion Flycatcher (*Pyrocephalus rubinus mexicanus*) in Coachella, Riverside County, California, as it is, I believe, the most westerly breeding station that has been noted.

While in company with Mr. Fred Frazer on April 15, 1928, he called my attention to the nest which was twelve feet from the ground in a mesquite tree in a rather open thicket. It was on top of a horizontal branch at the fork of two limbs, each being over an inch in diameter, and could be seen from only one spot on the ground. If the female had not flushed from the nest it would have been overlooked. The nest contained three slightly incubated eggs of typical shape, size, and markings, and the weights in grams were 1.70, 1.69, and 1.64.

We flushed the female from time to time to see if we could attract the male, and after fifteen minutes we were rewarded by getting a glimpse of him 100 feet distant. We kept up the flushing of the female which, by this time, could almost be touched while upon the nest. Finally the male came within five or ten feet of us and we were able to enjoy seeing this beauty of the bird world in different positions. The female's chief anxiety seemed to be to get back on the nest as soon as possible, and she was seemingly urged to do this by the male who divided his scoldings between us and the female. Shortly after the male arrived on the scene, copulation took place in a nearby tree.—WILSON C. HANNA, *Colton, California, December 2, 1928.*

Male Tree Swallow Feeding Nestling Robins.—Under the eaves of my house at Okanagan Landing a flat-roofed bird house has been occupied by Tree Swallows (*Iridoprocne bicolor*) for many years. Directly in front of the site, shading it from direct sunlight, stands an apple tree, its trunk a scant two feet from the house wall. The bird box is within reach of a person standing on the veranda rail and is in plain view; consequently the domestic duties performed by its occupants may be studied at a convenient distance by any one interested enough to watch from the veranda.

In May, 1928, a pair of Western Robins (*Turdus migratorius propinquus*) built their nest on top of the bird house, the interior, as usual, being occupied by Tree Swallows. On June 1 the Robin's nest contained three fledglings about eight days old while the female Tree Swallow, a few inches below, was brooding newly hatched young. On the afternoon of this date my five-year-old son insisted that I go into the garden because the swallow was hurting the little robins and something should be done about it. On investigating this complaint the male swallow was found to be feeding the young robins. During five minutes he visited the nest three times, on each trip carrying food in his bill. At his approach the young birds stretched their heads up so far that the swallow, perched on the rim of the nest, barely could reach their open mouths.

The nest was carefully watched on this evening by an interested audience. From 6:30 to 7:00 P. M., the male swallow fed the robins six times; the female robin fed twice and the male robin—a stub-tailed bird easily recognized in any light—fed once, just at 7:00 P. M. Upon this visit he brooded for a half-minute, not very carefully, for the stretched necks of two nestlings could be seen against his breast.

The swallow was more assiduous than either of the robins, and on one occasion as he flew to the nest the female robin happened to be feeding, whereupon he circled about close in, making sudden swoops towards the nest and chattering continuously.

In approaching the nest the Tree Swallow usually flew directly to the horizontal perch of the bird house and from there to the nest rim. The female robin, on the other hand, was more circumspect, approaching in a roundabout way, with a preliminary survey perhaps from the top of a nearby lawn sprinkler or from the adjacent apple tree. From these points, after giving a low call note, she would fly straight for the nest and stand usually inside the cup.

From 7:00 to 7:20 the swallow fed three times, the female robin five times, and the male robin did not appear. Meanwhile the female swallow flew in and out of the box several times. The male swallow during all this period did not enter the nest box.

On June 2 observations were not continued, but the two swallows were seen mobbing the female robin. The latter crouched low on the limb of an apple tree while with snapping bills they swooped from either side uttering excited cries.

Subsequently the Robin and Tree Swallow menage was not kept under close observation, but at 8:00 A. M. on June 5 the male swallow again was feeding the robins. On the following day the half-grown robins had left the nest and for several days afterwards remained in the garden where they were fed by their parents only.

For robins to take advantage of these sheltered and convenient nesting sites is not unusual; for in the summer of 1928 another box, below the eaves of my garage, was dually occupied by the two species mentioned. So also was the site under the veranda eaves in 1917 and 1918. On this later occasion it was thought necessary to destroy the robins as the female had been caught in the act of destroying the eggs of a Western Wood Pewee whose nest was saddled on the branch of a plum tree a few yards distant.—J. A. MUNRO, *Okanagan Landing, British Columbia, December 3, 1928.*

Some Winter Birds at Tucson, Arizona.—Messrs. Miller and Swarth, homeward bound to California from the A. O. U. meeting at Charleston in November, 1928, stopped over at Tucson, Arizona, where, in the company of W. P. Taylor, they made sundry trips into the surrounding country. Swarth remained but one day (November 28), but Miller lingered until the evening of December 1. Taking the road toward San Xavier Mission (November 28), a stop was made near the outskirts of Tucson to investigate a likely-looking row of mesquites along a ditch. Some large, dark-colored birds flying in the distance attracted attention, first as, presumably, Turkey Buzzards, then doubtfully, as perhaps ravens. Discharge of a gun a few moments later startled others from the ground in the vicinity of a nearby slaughter-house, hidden by the trees, and they were then plainly seen to be Black Vultures (*Catharista urubu*). There were fifteen or twenty in sight at once, circling about together with a few Turkey Buzzards. The Black Vulture has been recorded just once before from Arizona, by W. W. Cooke, who states: "Several seen, May, 1890, by Dr. A. K. Fisher in the Tonto Basin" (Auk, XXXI, 1914, p. 403). It is a species that should be looked out for in future in southeastern California.

Below the mouth of Bear Cañon, which issues from the Santa Catalina Mountains some twelve or fifteen miles northeast of Tucson, a Gray Titmouse (*Baeolophus inornatus griseus*) was collected (November 28), shot amid desert surroundings some distance from the mountains. Taylor sees them occasionally in this region in winter. There are just two previously published records of occurrence of this species in southern Arizona, neither of them very definite. Brewster makes the statement: "Mentioned in Mr. Stephens' notes as rare on the foothills of the Chiricahua Mountains, but no specimens are included in his collection" (Bull. Nuttall Orn. Club, VII, 1882, p. 79). Henshaw says, "in Southern Arizona the oaks are much frequented" (Zool. Exp. W. 100th Merid., 1875, p. 167), but he nowhere gives any further information as to just where he found the species. We know of no previous record of a specimen actually collected in southeastern Arizona, where, however, from Taylor's observations, it may be classed as an occasional winter visitant to some sections.

Besides the above mentioned, the following species were seen in the desert lowlands within twenty miles south and east of Tucson, on November 28. *Lophortyx gambelii, Zenaidura macroura marginella, Chaemepelia passerina pallescens, Cathartes aura septentrionalis, Accipiter cooperii, Buteo borealis calurus, Falco mexicanus, Falco sparverius phalaena, Geococcyx californianus, Centurus uropygialis, Colaptes chrysoides mearnsi, Sayornis sayus, Sayornis nigricans, Carpodacus mexicanus frontalis, Chondestes grammacus strigatus, Zonotrichia gambelii, Amphispiza bilineata deserticola, Junco oreganus shufeldti, Pipilo fuscus mesoleucus, Cardinalis cardinalis superbus, Pyrrhuloxia sinuata sinuata, Calamospiza melanocorys, Lanius ludovicianus excubitorides, Dendroica auduboni auduboni, Anthus rubescens, Toxostoma curvirostre palmeri, Heleodytes brunneicapillus couesi, Salpinctes obsoletus, Troglodytes aedon parkmanii, Thryomanes bewickii eremophilus, Auriparus flaviceps flaviceps, Regulus calendula calendula, Polioptila caerulea amoenissima, Polioptila melanura melanura.* In addition to the birds listed we saw ravens, meadowlarks, a single song sparrow, and a species of *Spizella*, which we could not identify exactly.

During the subsequent three days, Miller noted the following species along the Rillito: *Oxyechus vociferus, Bubo virginianus pallescens, Otus asio gilmani, Colaptes cafer collaris, Sphyrapicus varius nuchalis, Phainopepla nitens, Mimus polyglottos leucopterus, Toxostoma crissale, Sitta carolinensis nelsoni, Baeolophus wollweberi, Turdus migratorius propinquus, Sialia mexicana bairdi, Hylocichla guttata,* subsp.—LOYE MILLER, WALTER P. TAYLOR, and H. S. SWARTH, *January 7, 1929.*

California Purple Finch Nesting in Alhambra, Los Angeles County, California.—Early on the morning of May 5, 1928, the song of a male California Purple Finch (*Carpodacus purpureus californicus*) aroused me from sleep; and, although only half dressed, I was outside in a few minutes to get a better glimpse of this new visitor to our home. To my surprise, there were two birds, both being in "plain clothes" plumage, the male and possibly the female in the first year of nesting activity. The two birds remained on our place for several days and seemed to be engaged in something more important than merely resting a few days before again taking flight.

May 10 was the day when actual work was begun on a nest in a pine tree directly in front of the entrance to the house. Construction progressed rapidly and on May 26 I made my first inspection. The nest, which was about thirty feet from the ground and neatly made of small grasses, rootlets, horse hair, etc., contained three eggs.

On the following morning a general disturbance was heard in the yard and I rushed out in time to see a pair of California Jays leaving the scene. At the base of the tree was a broken egg and I knew well whom to accuse for this act. For two or three days the Purple Finches remained, but they had apparently deserted their home, so on May 28 I climbed the tree again and found two eggs in a sadly torn nest. These were collected.

This is the only instance I know of, of any purple finches nesting in this vicinity, and I have seen no others here since during the breeding season.—J. STUART ROWLEY, *Alhambra, California, January 15, 1929.*

Evidence of a Barn Swallow Returning to the Same Nesting Site.—In the summer of 1925, a pair of Barn Swallows (*Hirundo erythrogaster*) selected as a nesting site one of the rafters supporting the roof of a woodshed at the rear of my house

at Okanagan Landing, British Columbia. After attaching a few pellets of mud to the rough edge of the board both birds disappeared. In 1926, at approximately the same date, a pair of Barn Swallows was noted investigating the premises and in a day or so the birds commenced adding to the nest foundation made the previous year, which now was supported underneath by the addition of a board nailed at right angles to the rafter. Work on the nest was discontinued in a few days and again the birds disappeared.

On May 20, 1927, a pair of Barn Swallows again visited the shed and immediately began building on the same site, using the old foundation which had remained intact on its supporting shelf. Building was carried on intermittently and the nest was not completed until nearly four weeks later. During this period both birds roosted at night on the shelf beside the nest. After a week or so of close association with members of the household the birds became quite tame and were not disturbed by the opening and closing of a door within a few feet of the nest. A favorite perch of the male was on top of a clothes wringer, and here he would chatter excitedly as a person passed by, sometimes within arm's length.

On a day when the nest appeared to be finished, the cup being well lined with white hen feathers, the female was seen to be hurt. The next day I picked her up from the ground and she died in my hand. For several weeks following, the male visited the shed daily, the first few days bringing hen feathers to the already overlined nest and chattering from his favorite perch on the clothes wringer. At other times he might be seen motionless on a telephone wire in front of the house. It was expected that he would secure another mate but he did not do so.

When, in early May of 1928, a pair of Barn Swallows again appeared, the shed had been torn down and on its site stood a half-finished room in which carpenters were at work. The windows were not glazed nor was the outside door hung. Through these openings the swallows entered a number of times, flew about the room and investigated the premises.

Under the house is a cement basement, the outside door being about twenty feet from the site of the old woodshed. Finding a bridged ceiling joist an excellent nesting site, the swallows at once began to build and in due course the nest was completed and five eggs laid. During this time workmen were tearing down part of the cellar wall beside them, and various activities were being carried on with a great deal of noise right under the nest. In spite of all this the eggs were hatched and the young reared. Of course their occupation of the basement meant that the door had to be left open all summer, an inconvenience that seemed small payment for the pleasure of entertaining these delightful tenants after so many disappointing experiences.—J. A. MUNRO, *Okanagan Landing, British Columbia, January 15, 1929.*

Least Bittern near Portland, Oregon.—On August 7, 1927, while rowing along the shore of Blue Lake, Multnomah County, I saw two Least Bitterns (*Ixobrychus exilis*). They were only a few yards away and disappeared into a growth of cat-tails. Several times in May and June of 1928, I worked this place carefully in hopes of finding evidence of their nesting there but was disappointed. These two individuals are the only ones I have ever seen west of the Cascade Mountains in either Oregon or Washington.—ED. S. CURRIER, *Portland, Orgon, January 10, 1929.*

The E. B. Richards Collection of Birds: Changes in Names.—A valuable collection of more than two hundred birds collected by the late Mr. E. B. Richards, was presented by him to the Museum of Vertebrate Zoology some months previous to his death. The specimens were obtained in the Grass Valley district of Nevada County, California, during a period of nearly twenty years, from 1910 to 1926. The greater portion of this collection was the basis of Mr. Richards' "List of the Land Birds of the Grass Valley District, California" (Condor, XXVI, 1924, pp. 98-104). In cataloging this collection, several changes in identification have been made, and it seems advisable to record such as pertain to the above mentioned published report.

Falco columbarius columbarius (p. 100) based on records of "only two in this locality". The two specimens referred to prove to be adult males of *Accipiter velox.*

Archilochus alexandri (p. 100). The two specimens so identified in the collection prove to be *Calypte anna.*

Zonotrichia leucophrys leucophrys (p. 102). The four specimens in the collection are *Zonotrichia leucophrys gambelii*, which is the winter visiting race in this district—not *Z. l. leucophrys*.

The record of *Dendroica townsendi* (p. 103) taken on September 8, 1918, should be changed to *Dendroica occidentalis*.—MARGARET W. WYTHE, *Museum of Vertebrate Zoology, University of California, Berkeley, December 18, 1928.*

On the Courtship of the American Bittern.—On May 8, 1928, near the north end of Osooyos Lake, British Columbia, the writer and Mr. S. J. Darcus of Penticton, British Columbia, witnessed the display of a male American Bittern (*Botaurus lentiginosus*) and the consummation of his courtship.

The observers' attention had been attracted by a Bittern's "pumping" coming from a recently flooded meadow where the growth was not sufficient to conceal any of the birds that were present. A scrutiny of this area with 6-power binoculars revealed the author of the sounds, some ninety yards distant, standing bolt upright in the shallow water, with neck outstretched and bill pointing skyward. Twenty-five yards farther out, fully exposed to view on dry ground bare of vegetation, crouched a second bird with head drawn in close to the body which was in a nearly horizontal position. This second bird proved to be a female. Suddenly the nearest bird began to "pump"; two "pumps" in quick succession, then repeated a minute or so later. During these efforts the body was thrust forward and bill pointed towards the water. After "pumping" the third time he assumed a stooping attitude and stalked slowly through the shallow water toward the motionless, crouching female, displaying as he did so a large area of white behind the shoulders. When within six feet or so of his mate he began walking around her in a circle, still stooping and displaying still larger patches of white. Suddenly came a movement so fast as almost to escape detection, and the female disappeared beneath the outspread, vibrating wings of her mate. Congress completed, the male stood quietly to one side while the female shook herself just as a domestic fowl does under the same circumstances.—J. A. MUNRO, *Okanagan Landing, British Columbia, December 3, 1928.*

Eight-mile Censuses in 1927.—In the CONDOR for May, 1927 (pp. 144-147), I discussed 13 eight-mile censuses made over a tract of diversified country in central Oklahoma during 1926. Since we have left Oklahoma, it seemed advisable to give the results of the five censuses taken in Cleveland County in 1927, so that they can be compared with the corresponding ones of 1926. (Numbers of species are given first, individuals second.)

1926. January 1, 39: 2400; February 1, 35: 1400; March 20, 45: 600; April 24, 61: 460; May 4, 66: 450.

1927. January 8, 33: 760; February 22, 36: 1600; March 28, 47: 900; April 24, 59: 500; May 5, 67: 600.

The numbers of species are very much the same during the two years except in January; the numbers of individuals differ more, but not very much, again with the exception of January. In 1927 there were more birds from late February on, than had been seen in 1926 except on April 24 when they were practically the same. The reason for the striking difference in the two Januaries lies largely in the great abundance of blackbirds in 1926 and their entire absence in 1927; moreover, twice as many sparrows were recorded in 1926 as in 1927, and four times as many Crows and Meadowlarks.

The really surprising agreement of the findings in both years in March, April and May—the main migration months—gives additional evidence of the relative stability of the bird population in this region, due apparently to the small number of transients.—MARGARET M. NICE, *Columbus, Ohio, January 3, 1929.*

Bird Notes from Big Bear Lake, San Bernardino Mountains, During the Summer of 1928.—On July 1 a Dusky Poor-will (*Phalaenoptilus nuttallii californicus*) was flushed from under a pine near Pine Knot. This species seems to be of rather unusual occurrence in this locality and had probably drifted up from the more favorable surroundings of the desert slope to the east.

Two Western Gnatcatchers (*Polioptila caerulea obscura*) were seen on July 1 in a little cañon at 7000 feet altitude, among the pines in a typical Transition associa-

tion. This is my first record for this species at Big Bear Lake though it occurs quite commonly ten miles to the east among the piñon pines.

My first record for the Ash-throated Flycatcher (*Myiarchus cinerascens cinerascens*) for Big Bear Lake was a single bird near Pine Knot on July 14.

On September 1 a Road-runner (*Geococcyx californianus*) crossed in front of my car on the main road through the pines on the north shore of the lake near Camp Juniper. I believe that this is the first record for this bird for Big Bear Lake. To me the bird seemed very much out of place in this Transition association.

On July 5 an American Osprey (*Pandion haliaëtus carolinensis*) was seen flying along the shore of Big Bear Lake near the Moon Camp. It was carrying a fish in its talons. This bird is of rather uncommon occurrence for this region.

During the latter part of August and early September, Pintail Ducks (*Dafila acuta tzitzihoa*) were unusually abundant at Baldwin Lake, and several large flocks were seen on Big Bear Lake. Many were shot on the opening day of the season, October 1, but the greater number left soon after the bombardment started.—WRIGHT M. PIERCE, *Claremont, California, January 20, 1929.*

Lesser Yellow-legs in Willamette Valley, Oregon.—On November 21, 1928, I found two Lesser Yellow-legs (*Totanus flavipes*) feeding in shallow water of a small slough running into the Willamette River, near its mouth. It was a sunny, warm day and the birds permitted me to approach within twenty yards but worked away when I tried to get nearer. They were there when I left, as I did not flush them. These two birds are the first of this species I have seen in the Willamette Valley.—ED. S. CURRIER, *Portland, Oregon, January 10, 1929.*

Blackbirds Feeding on the Forest Tent Caterpillar.—At Rollings Lake, British Columbia, on June 5, 1925, it was observed that Red-winged Blackbirds (*Agelaius phoeniceus*) and Brewer Blackbirds (*Euphagus cyanocephalus*) were busily feeding on the forest tent caterpillars that partly had defoliated the poplar trees along the lake shore. Both species nested in the vicinity; the redwings in two small tule marshes that fringe the lake shore; the Brewer Blackbirds in stumps, on the ground, or in crevices of dead poplar trees that stood close to the lake. Blackbirds of both species also were seen flying from the infested trees to their nests and back again, presumably carrying the larvae to their young.—J. A. MUNRO, *Okanagan Landing, B. C., January 15, 1929.*

A Shower of Grebes.—During an early morning hour (about 2 A. M.) of December 13, 1928, residents of Caliente, Nevada, were awakened by a heavy thumping of something falling on the roofs of their houses. Those who were curious enough to step outside and investigate the unusual occurrence found scores of water birds in the new fallen snow. The next morning, several thousand eared grebes (*Colymbus nigricollis californicus*) were found on the ground and flat roofs of business houses throughout the city.

Mr. E. C. D. Marriage, Editor of the Caliente Herald, and formerly secretary to the Cambridge University (England) Natural History Society, writes that "literally thousands of these birds were found in every portion of the town and outskirts." In a personal communication to me he says, "We saved thousands by putting them in the creek; most of those that died were crippled in some way; they were forced out of the air by the heavy density of the snow which bore them to the ground, thousands being buried under the snow, and working themselves out in the morning. I watched hundreds coming up through the snow. Many flew off at noon, going southwest. Hundreds were killed by hitting the wires, houses, and trees. Caliente had the main bunch, but they were scattered for twenty miles every way."

In a later issue of his paper, this Editor asserts: "Many thousands of the birds have remained in the vicinity of Caliente in the Meadow Valley Wash and other streams and ponds. Thousands died, and Deputy Sheriff Frank Palmer is superintending the work of clearing the streets and the flat roofs of the business houses of the dead birds which died when they hit the buildings and trees of Caliente, the dead birds being stacked in big piles and hauled away." Numerous other reports confirm the Editor's account.

A stockman, riding after cattle in the mountains some fifteen miles southwest of Caliente, found many of these birds helplessly marooned in the snow. A few scattered individuals (probably of the same species) were found as far south and west as Las Vegas, Nevada. A high school teacher of Enterprise, Utah—some forty-five miles east and north of Caliente—writes that "several hundred Grebes dropped in the streets" of Enterprise during this same night. Several hundred more were reported being found in the snow at Uvada and Modena, Utah.

Five specimens of *Colymbus n. californicus* were sent to me from Caliente, Nevada, and Enterprise, Utah. All the fallen birds were regarded as being of this species. However, inasmuch as grebes experience such difficulty in rising from the land, many of those that flew on south may have been some other species of waterfowl. Those that did not fly off were often observed picking feathers from their breasts and eating them. They were fat; however, nothing but feathers was found in the stomachs of those examined.

It is only conjecture to say from which bodies of water the birds left to go on this fatal migratory flight. Possibly many came from the area of the Bear River Marshes and Great Salt Lake, Utah. The writer observed many grebes there in November. As the marshes became frozen over the birds may have gone farther out on the saline water of the Great Salt Lake to feed upon brine shrimps. The fresh-water lakes of northern and central Utah were frozen over two or three weeks prior to this flight of the grebes.

It would be interesting to speculate as to the causes of such a general and complete migration. The evening of December 12, the air was comparatively warm and still. By midnight a general and heavy snowstorm set in. The birds appeared to be in large flocks and were probably following down the Meadow Valley Wash on their way to the Pacific coast of southern California or to some inland lake near there. The bright lights of the railroad yards at Caliente may have attracted them there.

This unusual occurrence seems further to indicate that the grebes are much more numerous in the west than we had hitherto believed they were. It further points to the fact that they often migrate at night time. It also shows that many are very late migrants.—CLARENCE COTTAM, *Brigham Young University, Provo, Utah, January 21, 1929.*

EDITORIAL NOTES AND NEWS

The fourth annual meeting of the Cooper Ornithological Club will be held in San Francisco and Berkeley, on Friday and Saturday, May 17 and 18, 1929. Sessions for the presentation of papers will be held in the mornings and afternoons, and the evening schedule includes the annual meeting of the Board of Governors and a dinner for members of the Club and visitors. The scientific sessions on May 17 will be held in the Auditorium of the California Academy of Sciences in Golden Gate Park, San Francisco, and those of May 18 on the Campus of the University of California at Berkeley. An art exhibit of natural history subjects will be included in the attractions of the meeting. Members expecting to attend are asked to notify the Committee of this fact, on the blanks which shortly will be mailed to them. Those who expect to present papers are asked to give for each the exact title and the time required, and to indicate whether lantern slides or motion pictures are to accompany the paper. Lantern and film projection facilities will be provided at the meetings. If the supply of papers is in excess of the allotted time for reading and discussion the Committee will reserve the right to limit papers to a maximum of 15 minutes and contributors to a single appearance on the program. The Committee in charge will be glad to arrange for field trips to points of ornithological interest in the San Francisco Bay region, provided a sufficient number of members or guests are interested. At the annual meeting of the Board of Governors it is hoped that the articles of incorporation, which will place the Club in position to receive bequests, will be acted upon finally. Further information on the annual meeting may be obtained from either of the following

Committee members: T. I. Storer, University Farm, Davis (chairman); H. S. Swarth, California Academy of Sciences, Golden Gate Park, San Francisco (program); Loye Miller, 6066 Hayes Avenue, Los Angeles (president Board of Governors); or J. Grinnell, Museum of Vertebrate Zoology, University of California, Berkeley (finance).

PUBLICATIONS REVIEWED

THE BIRDS OF NEW MEXICO* by Florence Merriam Bailey will be consulted by many appreciative readers even outside the confines of the state to which it is nominally restricted, for it is in fact a reference book to the birds of the southwestern United States. In make-up it is about as follows: The sequence of entry of Orders and Families is that recently adopted by the Committee on Nomenclature of the American Ornithologists' Union; the names used are ("with some exceptions") those in the 1910 edition of the A. O. U. Check-list and its three supplements. Under each species and subspecies there is first a heading, with the English name emphasized, then eight-point introductory paragraphs covering such subjects as "description," "range" (that is, entire habitat), "state records," "nest," and "food," then "general habits," in ten-point type, and finally an eight-point paragraph listing "additional literature." The subject matter under the several headings is, of course, elaborated or condensed in accordance with the local importance of the species and with the amount of information available. Introductory chapters deal with "distribution of birds of New Mexico," "zonal distribution of breeding birds," "value of birds to the state," "national and state refuges and state organizations for the conservation of wild life," "birds first described from New Mexico," "fossil birds found in New Mexico," "location of collections made in New Mexico," "itineraries and reports of field work in the state," "localities visited by observers," and "glossary of technical terms."

Mrs. Bailey's years of study of western birds and her extensive field observations in the Southwest have thus yielded an abundant harvest. The book is well planned and well executed, and will assuredly be useful and a source of pleasure to those who refer to it. The descriptive matter, while not in such detail as in more technical works, is well presented and is perfectly adequate, especially in conjunction with the numerous illustrations; the historical chapters, dealing with expeditions long past and recent, with localities, and with individuals, contain a wealth of pertinent information; and the sections on "general habits" permit the author to depict in her usual happy vein her reactions to the actual presence and companionship of the birds she loves so well.

There is an abundance of illustrations, well chosen as supplementary to and as elaborating the descriptive printed matter. The outstanding illustrative feature lies in the 24 colored plates of birds, one by Fuertes, the remainder by Brooks, all made for this publication. They are the beautiful and accurate bird portraits that we are accustomed to see produced by these artists, and in addition, in the many cases where but one or two species are portrayed on one plate, the birds fit into pictures, charming bits of Southwestern landscape, that are calculated to make any exiled old-timer of the region homesick upon sight.

In any book of this nature, running to some 800 pages, there are bound to be details open to criticism, but in the Birds of New Mexico, with the best of intentions, we found so few of these of any moment, and, at that, so few that could not be said to be debatable, that we prefer to leave them for the most part unmentioned. We do wish, though, that the bibliography with which the book concludes had been rigidly confined to titles pertinent to New Mexico, and that the many supplementary citations had been handled differently. We wish, too (an inconsequential detail), that *Buteo lineatus elegans* had been omitted; its inclusion we are sure is a glaring error. Finally, we wish that the publisher had given us a book of lighter weight. And with this sop to the fault-finding instinct of the

*Birds of New Mexico | By | Florence Merriam Bailey | Author of Handbook of Birds of the Western United States | With Contributions by the Late | Wells Woodbridge Cooke | formerly Assistant Biologist of the Biological Survey | Illustrated with Colored Plates by | Allan Brooks | Plates and Text Figures by the Late | Louis Agassiz Fuertes | And Many Other Cuts from Drawings, Photographs, and Maps | based mainly on field work of the Bureau | of Biological Survey, United States | Department of Agriculture | — | Published by the New Mexico Department of Game and Fish in Cooperation | with the State Game Protective Association and the | Bureau of Biological Survey | 1928; pp. xxiv + 807, 79 pls. (25 in colors), 136 text figs., 60 distribution maps, and 2 diagrams.

reviewer we hasten to urge anyone interested in Southwestern birds to get this volume, profit by it, and enjoy it.—H. S. SWARTH, *January 7, 1929.*

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

DECEMBER.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held in the Museum of Vertebrate Zoology, Berkeley, on December 27, 1928, at 8:00 p. m. Vice-president Clabaugh presided, with thirty members and visitors present. Minutes of the November meeting were read and approved. The name of Dr. Theodore Sherman Palmer of Washington, D. C., was proposed for honorary membership in the Club, the proposal being worded as follows:

We, the undersigned members of the Cooper Ornithological Club, hereby propose for Honorary Membership in this organization, Theodore Sherman Palmer of Washington, D. C. We believe that by the election of Dr. Palmer to honorary membership in the Club, our organization would gain merit, and we also believe that Dr. Palmer's long and scholarly identification with the ornithology of western North America justifies our extending to him whatever recognition honorary membership in this Club can confer.

Signed: Joseph Grinnell, Joseph Dixon, Jean M. Linsdale, Ernest D. Clabaugh.

In accordance with a provision of the constitution of the Club final action upon this proposal was deferred until the January meeting of the Division.

The Secretary announced the receipt of a communication from the secretary of the Hayward Memorial Aviarium requesting assistance in the indicated enterprise. Mr. H. S. Swarth reported upon the meeting of the Affiliations Committee of the Pacific Division of the American Association for the Advancement of Science, held in San Francisco on December 14, 1928.

Officers of the Northern Division for 1929 were nominated as follows: President, John G. Tyler, by H. S. Swarth; Vice-president, Ernest D. Clabaugh, by J. Grinnell; Secretary, Hilda W. Grinnell, by Mrs. H. B. Mikesell.

Mr. Swarth reported upon the annual meeting of the American Ornithologists' Union held in Charleston, South Carolina, November 20 to 22, 1928. Incidentally he spoke of seeing for the first time the Black Vulture, acquaintance with which he renewed a few days later near Tucson, Arizona. Mr. C. P. Smith spoke also of his interest in the Black Vulture during a recent Eastern trip and of his observance of its habits as differing from those of the Turkey Vulture. Mr. Clabaugh reported the capture of a Harris Sparrow in his bird trap last December and of another capture this December. Mr. Swarth announced seeing a Mockingbird in Berkeley on December 22, at Ellsworth Street and Bancroft Way.

Dr. Gayle B. Pickwell gave the talk of the evening upon "Reactions of Parent Birds in Nest Protection and Reactions of Young in Self Protection." Dr. Pickwell's talk was illustrated with an excellent series of slides, and his consideration of the selection of territory for nest building, the different phases of parental solicitude, and related topics was most interesting. Adjourned.—HILDA W. GRINNELL, *Secretary.*

SOUTHERN DIVISION

NOVEMBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held on November 27, 1928, at 8 P. M. in the Los Angeles Museum, Exposition Park, with twelve members present and President Chambers presiding. The minutes of the October meeting of the Southern Division were read and approved; those of the Northern Division were read by title only.

The following applications for membership were read: Mrs. Bessie M. Reid, Gulf Refinery, Port Arthur, Texas; and P. O. Fryklund, Roseau, Minnesota; both proposed by W. Lee Chambers.

A communication was read from A. G. Vestal, Secretary, Pacific Division, American Association for the Advancement of Science, in regard to the meeting of the Affiliations Committee to be held on December 14 in San Francisco. The Secretary was instructed, by a motion that was duly carried, to request the Northern Division to instruct its representatives at this meeting also to represent the Southern Division.

Those present were much disappointed when President Chambers announced that Dr. E. W. Nelson, who had been expected to be the speaker of the evening, was not able to be there. In Dr. Nelson's absence, the meeting was thrown open to general discussion. The program of the recent A. O. U. meeting was looked over and talked about, and a discussion of the ability of birds to take care of them-

selves in times of storms was started by reference to a statement that a colony of flamingoes had been entirely destroyed by the recent heavy winds in the West Indies and Florida region. Mr. Willett expressed the opinion that birds were generally quite able to take care of themselves under storm conditions. Mr. Chambers stated that the hunters reported very few ducks on Salton Sea after the first few days of the open season. A discussion of recent ornithological publications was followed by adjournment.—HAROLD MICHENER, *Secretary.*

DECEMBER. Special Meeting.—A special meeting of the Southern Division of the Cooper Ornithological Club was held on Sunday afternoon, December 9, 1928, at the home of Mr. and Mrs. J. Eugene Law, Altadena, California.

President Chambers reported the death of Mr. O. W. Howard while en route to the Galapagos Islands and told of what a strong and helpful member of the Cooper Club he had been for many years. It was moved by Dr. Miller and seconded by Mr. Law that Mr. Willett be appointed a committee of one to draft resolutions upon the death of Mr. Howard. Mr. Willett spoke particularly to the more recent members of the Club, telling of the years of Mr. Howard's active participation in Club affairs and of his continued interest and ready support of late years when the drain of other duties has made it impossible for him to participate in the meetings to any great extent.

The following resolution was unanimously adopted.

Whereas, it has pleased an all-wise Providence to remove from our midst our brother and fellow-worker, Ozra W. Howard; now, therefore, Be it Resolved, that we, the members of the Cooper Ornithological Club of California, here express our realization of the great loss we have sustained in the passing of a devoted friend of our organization and an earnest and life-long student of ornithology.

Be it further Resolved, that we extend to the wife and other relatives of our departed brother-worker our sincerest sympathy in their bereavement, and that a copy of these resolutions be placed on the minutes of the Cooper Ornithological Club.

Signed: W. Lee Chambers,
President of Southern Division,
George Willett, Committee.

The meeting was then adjourned.—HAROLD MICHENER, *Secretary.*

DECEMBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held on December 18, 1928, at the Los Angeles Museum, Exposition Park, with President Chambers in the chair. The minutes of the November meetings of both the Northern and the Southern division were read by title only. The minutes of the special meeting of the Southern Division, held on December 9, were read and approved.

The following applications for membership were read: Edward Herbert Lewis, Box 192, Avalon, Calif.; Edward Stern Weyl, 6506 Lincoln Drive, Mt. Airy, Philadelphia, Pa.; Carl C. Levingston, 1016 Ohio St., Redlands, Calif.; all proposed by W. Lee Chambers; James Stevenson, 1803 Campas Road, Eagle Rock, Calif., proposed by A. J. van Rossem; and Direk Bensen, P. O. Box 98, Ukiah, Calif., proposed by Margaret W. Wythe.

The following proposal of Theodore Sherman Palmer for honorary membership, which had been received from Dr. Grinnell, was read. [See under Northern Division minutes, p. 83.]

President Chambers explained the purpose of honorary memberships and gave the list of the present honorary members. It was moved by Dr. Rich and seconded by Mr. Appleton that the proposal be unanimously endorsed. The motion was carried.

A letter from Mrs. Grinnell was read stating that the representatives of the Northern Division, Dr. Evermann and Mr. Joseph Mailliard, would represent the Southern Division at the meeting of the Affiliations Committee of the A. A. A. S.

Since Dr. Miller was ill and could not be present, Dr. Bishop was prevailed upon to give an account of the annual meeting of the A. O. U. at Charleston. He stated the results of the election of Fellows and of other business transacted and gave a resume of the happenings during the period following. He spoke particularly of the several entertaining trips taken to points of interest, of the wealth of collecting material within a few minutes drive of Charleston, and of an entertaining boat trip to an island not far away.

President Chambers mentioned the nomination of officers for next year. It was moved by Mr. Pierce, seconded by Dr. Bishop, and carried that the president appoint a nominating committee to report at the January meeting. Colored pictures from the new book, "Birds of New Mexico", were then shown. It was stated that the funeral of O. W. Howard was to be held within a few days and all members who could do so were urged to attend. Adjourned at 8:45 P. M.—HARLAN H. EDWARDS, *Secretary pro tem.*